BPR CHANGE PROGRAMMES IN THE UK AND BRAZIL: A CASE STUDY INVESTIGATION WITH CONSIDERATION OF EMPLOYEE COMMUNICATION AND OTHER FACTORS

Submitted by

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Abstract

The framework of this thesis is supported by eight case studies from large manufacturing companies, four in the UK and four in Brazil. All the companies investigated were involved in significant Business Process Re-engineering (BPR), a major change programme. The research set out to investigate the operation of these exercises paying particular attention to the role of employee communication as an essential enabler of successful BPR projects. A theoretical review briefly describes some management philosophies and the principles of BPR, as well as corporate communication concepts within a business context. Following a preliminary questionnaire to identify participant companies, face-to-face interviews were an important part of the qualitative research methodology. Significant differences are reported in the communications procedures used in the manufacturing companies investigated. The project also reveals some of the reasons that have led the companies studied to rethink their entire business and internal attitudes. Positive experiences as well as difficulties in the planning and implementation of re-engineering procedures are described. The data gathered in the course of the research revealed a fundamental communications fault about the nature of BPR which has existed ever since the concept was first introduced. Another important finding shows that although corporate communication has received much higher attention in the past 5 years, improved communication is not sufficient on its own, and cannot solve all the change related problems. The results of the research include a communication model of the re-engineering process, which is intended to help BPR practitioners drive the re-engineering process to maximum beneficial effect. Recommendations produced in the light of the research findings aim to alert companies involved in BPR exercises to critical issues and possible pitfalls encountered during the implementation period.

CHAPTER 1

Introduction

Business process re-engineering (BPR) came to the business scene at the beginning of the 1990s with the basic proposition that business processes and the way people work had to be re-designed in order to achieve the flexibility and efficiency necessary to cope with the speed and unpredictability of the actual business environment (Hammer & Champy, 1990). However, the use of continuous improvement techniques on top of damaged structures has been strongly condemned by BPR advocates. The emphasis of re-engineering is on a complete redesign of inefficient structures in order to counter competitive threats in international and domestic markets (McManus, 1994). Examples of such threats are:

- changes in customer expectations
- changes in global technology
- changes in global competition
- change of internal skilled resources
- change of the operational structure

The changes are countless. As a result, companies all over the world are seeking innovative strategies that could differentiate them from their competitors. The adoption of new technology, the implementation of quality programmes, the constant search for cost reduction are all themes that have been in use for more than 15 years.

However, the demands on businesses have been growing faster and have become more unpredictable, and the use of competitive strategies, as illustrated above, is no longer effective for present business needs.

With this in mind, re-engineering proposes changes on the business as a whole, not just the improvement of parts by applying the individual strategies already mentioned. This research suggests that changing businesses means changing people too. Some results indicate that *people* will differentiate companies in the future as quality and information technology did in the 1980s.

Employee participation has been referred to by Young and Post (1991) as one important element which contributes to making change an accepted practice within companies, to accelerate decision-making and speed up innovation of new processes. That is why in the last 5 years concepts about human-related disciplines like empowerment, team working, partnership, and cross-functional activities have been taking up a great deal of time on the management agenda.

How to get employees aligned to the same vision, how to stimulate ownership and change people's attitudes have been issues for many companies involved in a re-engineering or other major restructuring project.

With the aim of exploring this issue, this research project investigates the role of communications in large manufacturing companies involved in a BPR project as well as

seeking to understand how communications procedures could interact better with human resource disciplines in order to improve the success rating of any change programme.

The remainder of this chapter introduces some principles of business process re-engineering and a brief report of the precedent management theories since the industrial revolution, followed by an examination of the communications processes within a BPR exercise. Finally, the chapter presents the research objectives, and the reasons for a comparative case study between Brazil and UK. Concepts of business process re-engineering, according to the academics and industrialists, and a brief discussion of the theory of communication are examined in Chapter 2. A description of the research methodology with the arguments to demonstrate the appropriateness of a qualitative approach and its validity to the context of this work is presented in Chapter 3. The chapter also discusses the research progress in the light of a structured methodology which is schematically presented according to the development of the project.

Chapter 4 discusses the practitioners' understanding and interpretation of a business process re-engineering concept, as well as describing the whole context in which BPR has been progressing. The chapter also presents some of the difficulties faced by industrialists during a change project and the organisational needs to support the development of the re-engineering plan. Chapter 5 examines the effectiveness of corporate communications development on the success of a BPR project as well as illustrating the case study experiences related to the vision and practices about internal communications - the tools and approaches implemented. A consideration of human

aspects of communications change also represents an important part of the data analysed.

A research model, the result of the findings, is drawn in Chapter 6, and as a second contribution to the field and practitioners, a discussion of the research and a guideline with a few major recommendations are presented. Finally, Chapter 7 briefly describes the research conclusions and recommendations for continuous development of this work.

As part of the research dissertation, a small amount of material from papers published by the author of this work has been included within some the chapters described above. The respective papers and chapters are:

(1) Belmiro T R, Gardiner P D and Simmons J E L (1997) 'Business process re-engineering - A discredited vocabulary?' *International Journal of Information Management*. This paper is referred to in chapters 1, 2, 3, 4 and 6.

(2) Belmiro T R, Gardiner P D and Simmons J E L (1996) 'Corporate communications: A restructuring issue' *Proceedings of the Twelfth International Conference on CAD/CAM robotics and factories of the future*. This paper is referred to in chapters 4 and 5.

1.1. A short history of management theories

Since the industrial revolution there has been an ever widening search for ways to improve operational business performance. In this context, many different approaches appeared to help focus on optimising returns on investment.

The post-industrial revolution period resulted in the modern concept of manufacture based upon more standardised designs and component interchangeability, compared with the craft-oriented era that preceded it.

Adam Smith, the philosopher and economist, transformed the way organisations operated. Smith's idea evolved from the experience gained in a pin factory where he discovered that productivity could be dramatically improved by breaking the manufacturing process down into a number of simple tasks, each performed by a specialist. This concept was called 'the principle of the division of labour' and they were encapsulated in his book, Wealth of Nations, published in 1776.

Henry Ford further refined Smith's work on the division of labour concept by reducing workers' tasks to installing a single part and by moving the work to the worker by means of the assembly line (Turner, 1994).

At the turn of the century, Frederick Taylor revolutionised the work place with his ideas on work organisation, task decomposition, and job measurement. Taylor's basic aim, which constitutes the essence of scientific management, was to increase organisational

productivity by applying to human labour the same engineering principles that had proved so successful in solving the technical problems in the work environment (Hounshell, 1988).

Henry Fayol, a French industrialist, wrote his first principles of management which were inspired from his experience as an executive, enhancing the importance of the theory of management disciplines to organise business (Fayol, 1949). His work was first published in 1916 and translated to English in 1929. His principles were about: division of work, authority and responsibility, discipline, unity of command and direction, subordination of individual interests to general interest, remuneration of personnel, centralisation, scalar chain, order, equity, stability of tenure of personnel, initiative and *esprit de corps* (team spirit).

By the 1950s 'Organisation and Methods' had become popular suggesting that the structure under review should be deeply investigated and re-organised to achieve its best performance (Milward, 1962). The practitioners would concentrate efforts on the study of the administrative and clerical procedures and organisational methods, office mechanisation and equipment, office layouts and working conditions.

Following the above came 'Work Study' which is based on systematic activities (Randal, 1969). It is concerned with the investigation, recording, measurement and improvement of work factors such as: what the operator does, which machines and equipment are used, what materials are used, and what are the working conditions.

Randall (1969) suggested that although work study records, measures and analyses, it should never make decisions. In his own words:

> 'work study should not be "this is what you should do" but rather "here are three alternatives and their probable consequences, the choice is yours"'.

At the same time, 'Management by Objectives' appeared in a management context. The term was first used by Peter Drucker in his *Practice of Management* (1954). Odiorne (1965) described Management by Objectives as a process whereby the superior and subordinate managers of an organisation jointly identify its common goals, defining each individual's major areas of responsibility in terms of results expected of him, and using these measures as guides for operating the unit and assessing the contribution of each of its members.

The concept of Total Quality Management, created in Japan in the 1950s, became a cult within the Western companies in the 1980s. The companies saw major changes occurring in the business environment when the Japanese emerged as a powerful source of competition across a broadening range of products by bringing their unique approach to product design, manufacture and management. Their success was not attributable to culture or mystical factors but to their use of methodology rather than technology (Turner, 1994).

Quality management seeks to embrace the product, the process and customer orientation. TQM is based on the theory of continuous incremental improvement and zero-defect. Undoubtedly, TQM greatly improved the performance of many companies in the 1980s, contributing to a transformation of the business culture (Bank, 1992).

Today, tough economic times and increasing global competition are forcing many organisations to re-evaluate their organisational structure, in order to become even more flexible and efficient, and in order to do so, companies more and more are delegating pieces of their planning and support responsibilities to the front-line (Suzanne, 1994).

Within this historical context there emerged at the beginning of the 1990s 'Business Process Re-engineering (BPR)', a term first coined by Hammer (1990) in his article *'Reengineering work: Don't automate, obliterate'*. As reported by many authors in the field, this so-called 'new' management concept offers the novelty of its particular focus - business process. However, Peppard and Preece stress that BPR contains also many other valuable elements of the past management philosophies, as mentioned above, which represents an important part of the organisational learning process (Burke and Peppard, 1995). Figure 1.1 illustrates how the management disciplines have evolved since the end of the last century towards business process re-engineering.

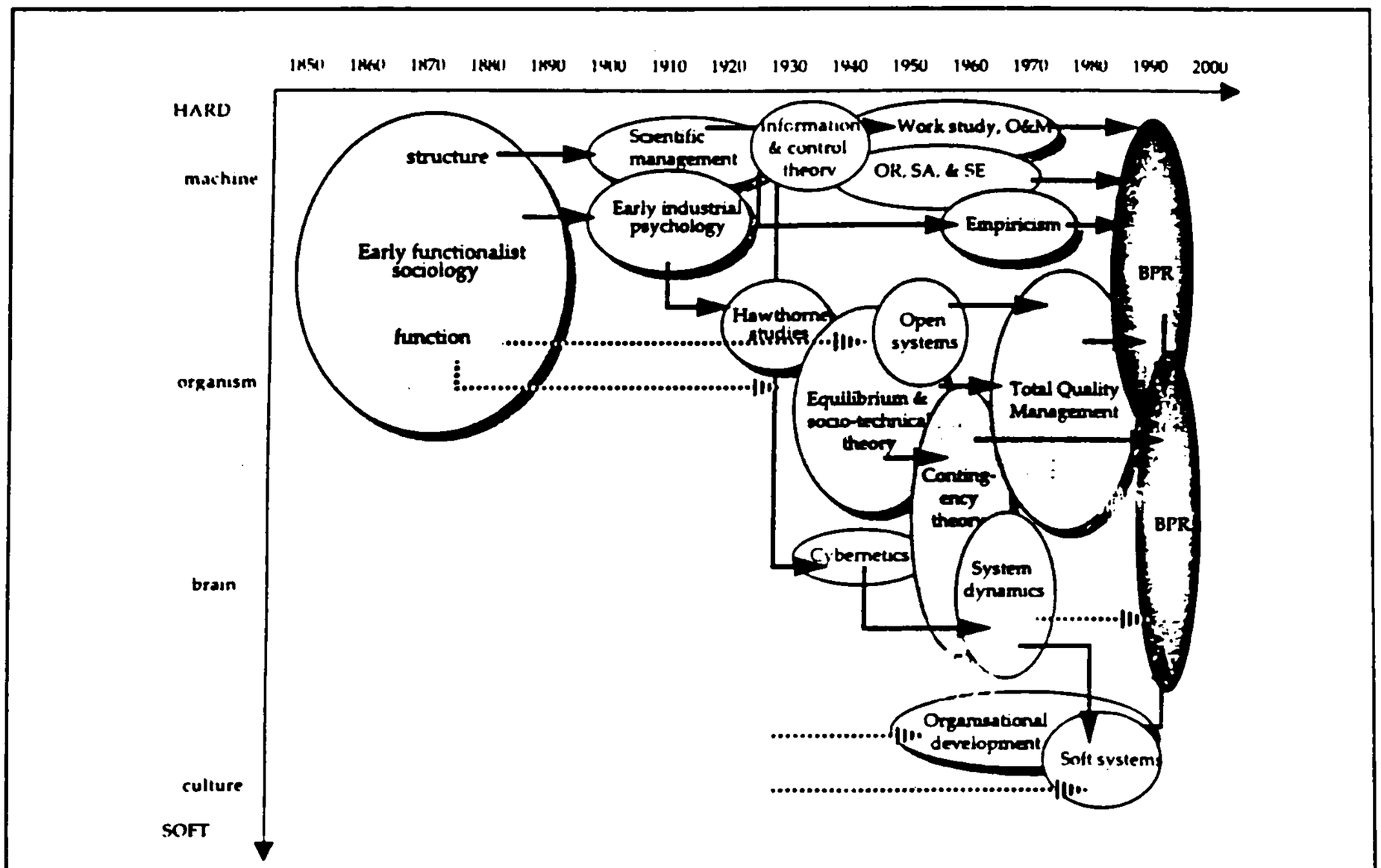

Figure 1.1: Intellectual Inheritance of BPR (Source: Peppard & Preece - Burke and Peppard, 1995)

The concept of BPR stresses the fact that new breakthroughs in organisationa performance are necessary; however, such breakthroughs cannot be achieved by cutting even more fat away or by further automating existing processes. Rather, BPR requires a radical change from past practices and outdated rules and assumptions which determine the structure of our organisations and the role of the people within them. BPR implies rethinking the essential business processes of an organisation, followed by a cross-functional re-structuring to support the newly defined processes.

That said, it is essential (Young and Post, 1994) for any organisation undergoing significant change to establish an effective communication programme, in order to assist employees to assimilate the new company vision. The following section introduces academic definitions of corporate communications.

1.2. Corporate Communication

When researching the literature it is easily noticed that many authors mention the value of communication to the success of any major re-engineering programme; however none of the literature consulted actually defined or studied in detail the discipline of *'corporate communications'*. Although the BPR literature has not yet explored this subject in depth, there is without doubt a greater awareness of the importance of it, which is not so evident when it comes to the industrialists, who still mostly communicate on a need-to-know basis. Strategies of change are still regarded as a kind of secret among top management people. Although much is spoken about concepts of empowerment, participation, cross-functional integration and partnership, a large

amount of information still does not reach front-line employees. Corporate leaders frequently say and seem to know that communicating is fundamental, but no specific attention is given to this discipline.

Definitions of corporate communications have been sought in literature other than re-engineering. Jackson (1987) describes corporate communications as:

> "the total communication activity generated by a company to achieve its planned objectives".

Dubin would refer to organisational communication (Roberts et al, 1973) as:

> "... a summary variable including a variety of phenomena involved in information transmission, attribution of meaning to that information, and consequent response".

Finally, van Riel (1995) suggests:

> "corporate communication is an instrument of management by means of which all consciously used forms of internal and external communication are harmonised as effectively as possible, so as to create a favourable basis for relationships with groups upon which the company is dependent".

This research project examines the importance of understanding the communication discipline in order to extract better results during the implementation of any re-engineering change programme.

1.2.1. Importance of communicating change

Studies have demonstrated that the failure of many recent large-scale efforts at corporate change can be traced directly to employee resistance (Spiker, 1995). Spiker's research suggests that the re-engineering leaders in an organisation can help employees adapt to change by including 3 elements in their change management strategy:

(1) participation *through* information

(2) alignment *through* persuasion

(3) communication *through* education

1.2.2. Preparing the organisational structure for change

The implementation of a BPR project will not, according to Hammer and Champy (1993), achieve any result if implemented on top of an obsolete process.

The reality that organisations have to confront is that the old ways of doing business - the division of labour around which companies have been organised since Adam Smith first articulated the principle - do not seem to work in the face of a global economy. This is because companies do not have only a few competitors and fixed consumers any more; rather, everything now depends on their competence for creating a market window or in some cases being there on time before a window closes.

The conventional, pyramidal organisational structure of most organisations was well suited to a high-growth environment because it was scaleable. When a company needed

to grow, it could simply add workers as needed at the bottom of the chart and then fill in the management layers above. However, in modern times this is not possible any more, largely because economical constraints. Therefore, restructuring business eliminating non-essential functions and/or activities has been a constant within most businesses in the past few years.

Restructuring - when necessary - is essential to support re-engineering in achieving its objectives. For instance, the following organisational changes have to be considered, says Hammer and Champy (1993), before undertaking a BPR project:

(1) delayering heavy hierarchical structure; more efficient access to information;

(2) substituting the pyramid for a network structure; where one area has responsibilities to another;

(3) downsizing; reducing non-added value processes;

(4) redesigning information technology; bringing efficiency to the right place.

1.2.3. Business process re-engineering: A complex vocabulary

Through the interviews conducted during this research a particularly consistent theme has been the inconsistency of the vocabulary and meaning attached to the term 'business process re-engineering'. This is particularly true among and within the case companies studied, but is also true for much of the management literature in the public domain. Although recent writings have begun to focus on the importance of establishing ar

individual identity to BPR, many authors to date have failed to deliver that. Perhaps one of the reasons for this is the attraction of and apparent ease in, both in the "real" world and in academic circles, creating something new from what already exists by just renaming it, or even by just slightly changing the existing words. The lack of standard vocabulary, and the failure of many authors to agree whether BPR is a theory, philosophy, or a technique is rendering its meaning useless (Belmiro et al, 1997). Already some consultants are talking about new tools to supersede BPR such as "corporate transformation".

The constant redefinition of what is already defined, creating many new and different words and phrases, is causing industrialists to miss the underlying essence of BPR which, according to the founders of BPR, has the power to drive a business, and its people ahead of the competition.

It is very difficult for BPR to succeed as a value-added management activity when there is a growing lack of shared understanding or vocabulary between practitioners and academics alike, when the communication is failing right at the beginning.

1.3. Research Objectives

In order to support the initial objectives of the current project a methodology based on a qualitative approach and case study investigation was adopted. It was expected that this methodology would assist the investigator to gather the necessary insight into the influence of communications on corporate changes - re-engineering projects. Such

research focus (for more detail see section 3.4) has emerged from themes of current interest among academics and industrialists. The investigation of the 'facts' comparing the management literature with the field - case study - was thought to contribute to the development of the area. In this context the major objectives to be examined are:

- to identify the level of importance devoted to employee communication strategies and their direct correlation to the success of large re-engineering projects in major manufacturing companies;
- to perform a comparative investigation of communications procedures in use in Brazilian and UK companies and their respective results;
- to analyse the interface between the 'human disciplines' and the communications strategies in use during the planing and implementation of a BPR project;
- to investigate the companies' best practices and experiences on changing the organisational culture.

1.4. Comparative case study investigations: Brazil and UK

This research project reports on eight comparative case study investigations on large scale re-engineering projects in manufacturing companies in the UK and in Brazil. The main comparison concerns the relative importance attached to communication procedures used during each company's changing programme, and examines how language and cultural differences have influenced this process.

1.4.1. Reasons for doing a comparative case study

One aim of this programme of research was to investigate the similarities and differences between the approaches to communications strategy used by two countries - with economical and cultural differences - during the planning and implementation of a re-engineering project. The researcher was also interested in identifying the effect of cultural differences on employee communications development. This investigation was thought to be highly significant for identifying where the experiences from the two countries can be of help for any other company in the manufacturing sector immersed in a BPR programme.

A preliminary questionnaire was designed to identify companies in the manufacturing and engineering sectors involved in a business process re-engineering project. The questionnaire was sent to functional managers in 25 companies in Brazil and 53 companies in UK. More detailed procedures of how this survey was carried out are reported in Chapter 3.

CHAPTER 2

Review of the Literature

2.1. Introduction

Relatively few systematic academic studies of BPR have been conducted since the coining of the concept by Hammer and Champy in 1993. Therefore, before we start a critical analysis of the literature, it is of paramount importance to point out that the literature concerning BPR and communications within the available BPR literature is dominated by the output from consultant organisations. However, the references used in this section have been carefully chosen in order to find a better balance of academic and non-academic materials of relevance and importance to the field.

Communications aspects within BPR literature are regarded frequently as a key element for the planning and implementation of changes; nevertheless very few papers have been written on this specific subject. Faced with this weakness in previous studies and documentation, all the theoretical support for this author's research concerning communications was sourced in an external area, which in this case was 'human and corporate communication literature', rather than the BPR literature.

2.2. Business process re-engineering

Business Process Re-engineering (BPR) literature has demonstrated over the last 5 years how significant is the potential of BPR for keeping businesses competitive. However, an enormous amount of material written about BPR shows a lack of universal agreement on terminology, methods or meanings. Differences in perception have developed as a result and there still exists confusion about the concept (Patching, 1994). In this regard, the current research demonstrated very quickly the importance of the issue of 'communication'. On the other hand, the lack of a shared understanding of the BPR concept also highlights the difficulty for the researcher to examine the role of communications during a BPR planning and implementation exercise, whereas even the company's decision to undertake a BPR exercise was often based on unclear written literature.

In order to aid understanding of this complex subject a few published definitions of business process re-engineering (BPR) are presented in the following section.

2.2.1. How the literature defines BPR

Public attention to 'business process re-engineering' developed in 1990 after the concept was popularised by Michael Hammer. However, the term has until now been 'a theme' not well interpreted among practitioners and some academics. The reasons emerge from the lack of shared vocabulary and definitions among BPR writers which certainly drives the readers to misunderstanding and misinterpretation (Belmiro et al, 1997). To

demonstrate those language and concept distortions some definitions of BPR are illustrated in the following paragraphs.

In Hammer's book 'Re-engineering the corporation: a manifest for business revolution', co-authored by J Champy (1993) the 'term' was officially formalised. In the book, re-engineering is defined as:

> "The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service and speed".

Davenport and Short (1990) say:

> "BPRe-design is defined by the analysis of work flows and processes within and between organisations".

Although the concept of BPR was around in the early 1990s some authors, such as Davenport and Short, initially had preferred to call it differently. Despite also the difference on the emphasis of the definition business process re-design is very similar to the approach given by Hammer and Champy. Moreover, Davenport and Short emphasise the value of information technology within BPRe-design.

Harrington (1991) also came with a slightly different name; *business process improvement* and different definition:

> "... a systematic methodology developed to help an organisation makes significant advances in the way its business processes operate. It provides a system that will aid you in simplifying and streamlining operations, eliminating waste and bureaucracy, while ensuring that both internal and external customers receive good output".

While Hammer defends the proposition that the changes must be dramatic and continuous, Harrington believes changes to be incremental and continuous.

According to Talwar (1993):

> "re-engineering is an approach of achieving radical improvements in customer service and business efficiency. The central challenge is to rethink and streamline the business processes and supporting architecture through which the organisation creates and delivers value".

Parker (1993) defines BPR as:

> "the use of evolutionary tools / techniques combined with enabling technologies to provide an explosive mix to make dramatic change throughout the organisation and to deliver what the customer requires".

The definitions of BPR could be endless if practitioners' views, as identified during the current investigative process, were included. Regardless of all the differences in definition we can identify from the concepts presented that BPR core matter is generally around four fundamental parameters: people, systems/structure, business processes, vision/objectives, which according to Poh and Chew (Burke and Peppard, 1995) are respectively found in four major organisational levels: bottom level (individual), second level (jobs definition, organisational structure, culture, etc.), third level (process), and the fourth level (includes measures of performance such as; cost, quality, speed, etc.).

2.2.2. What is a business process?

The focus of business process re-engineering is on management, and operating and administrative business process redesign (Scott, 1995). The re-engineering concept, as Talwar (1993) implies, basically ignores traditional functional and organisational boundaries. According to Talwar companies should place the emphasis on designing and implementing efficient cross-functional processes or so-called 'business processes'.

Davenport and Short (1990) defines a business process as:

> "a set of logically related tasks performed to achieve a defined business outcome".

Harrington (1991) says:

> "a business process consists of a group of logically related tasks that use the resources of the organisation to provide defined results in support of the organisation's objectives".

According to Hammer & Champy (1993):

> "we define business process as a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer".

In other words, a business process represents the flow of linked activities through a company, across the boundaries of departments and sections rather than up and down the management chain (Fisher, 1996). A greater amount of functional integration and organisational communication would have to happen, says Peppard (1995), to make a business process structure successful. According to Harrington (1991), it is expected that a cross-functional environment encourages employees to take the initiative, by

gathering information, consulting with other function experts and solving problems collaboratively.

2.3. Design approach decisions

Assuming a company finds it necessary to re-engineer its business processes, to restore efficiency and to gain market share, a number of primary considerations are suggested by Davenport and Short (1990). These are presented in figure 2.1 and comprise five major steps.

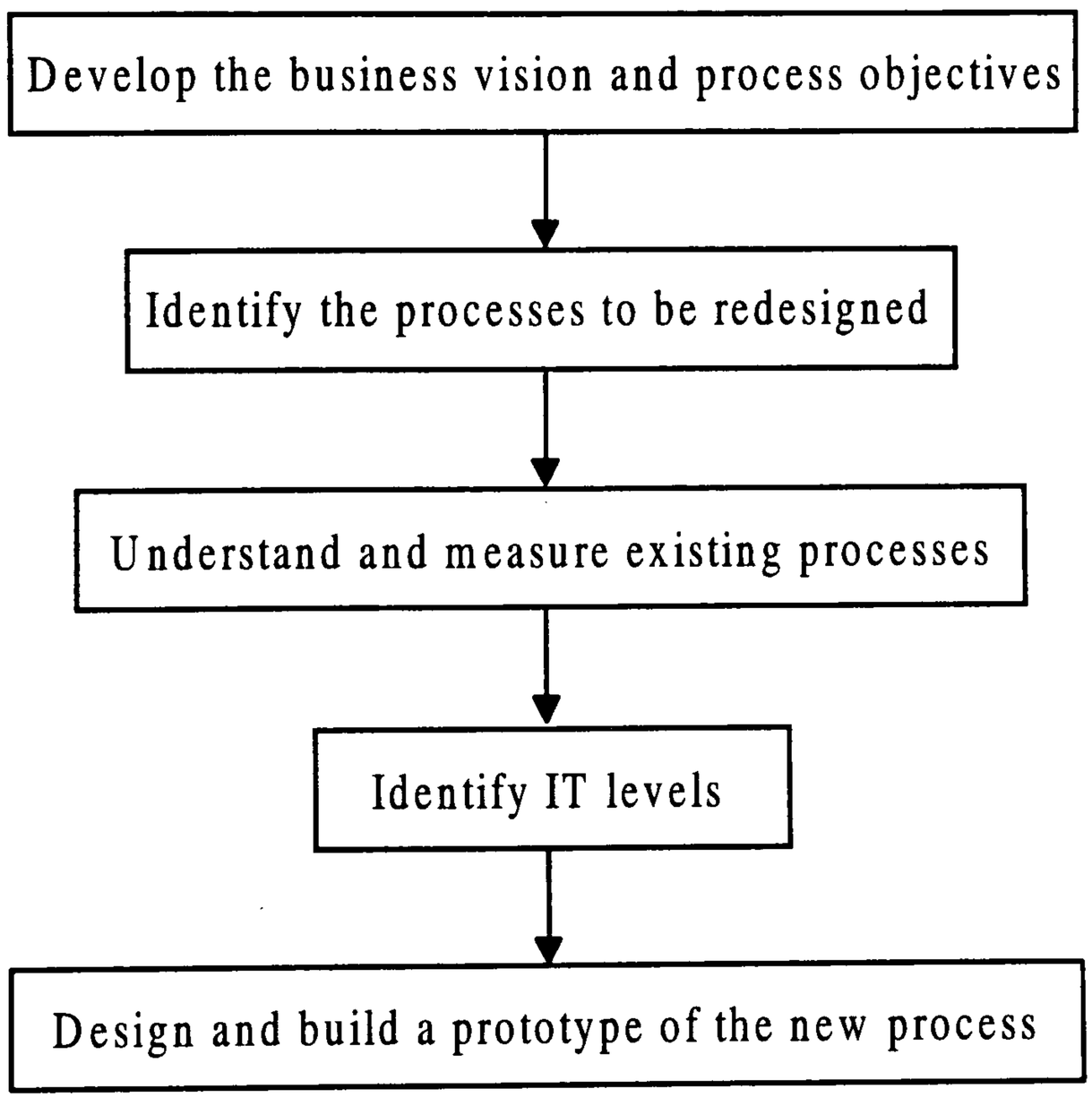

Figure 2.1: BPR key approaches (Source: Davenport & Short, 1990)

In resumé, the approach above consists of prioritising objectives and setting stretch targets, identifying critical or bottleneck processes, discovering the current problems and setting baselines, brainstorming new process approaches in terms of more efficient use of information technology, and finally implementing organisational and technical elements to support the whole scope of changes required.

Some studies (Braganza and Myers, 1995) indicate that in order to achieve such breakthroughs, major organisational and cultural change is necessary which inevitably will require from practitioners a stronger re-definition of the communications and the role people within the organisation.

2.3.1. Influence factors on decisions and implementation

Business process re-engineering is about changing everything within a company, not just business processes, but structures, attitudes, culture, management styles and values (Patching, 1994). Therefore, a considerable impact on the organisation and on the people involved is only to be expected.

In the sections that follow, we will consider some of the key factors that influence the results of any major re-engineering programme.

2.3.1.1. Internal organisational culture

Hall (1996) says that internal cultures are a conservative organisational context in which structures are formed. This organisational culture is a fairly stable set of taken-for-granted assumptions, shared meanings, and values that form a kind of backdrop for action. According to Schein (1993) selling a new vision is no simple task and to succeed, the innovator has to take into account the inertia of corporate culture which binds people to custom and practice. Harvey (1994) says that re-engineering leaders mostly forget an important law of the corporate culture, which implicitly says that beneath the formal surface of things, what really determines behaviour are the unwritten rules of the game. These implicit rules are those which people believe really count when it comes to getting on in the organisation.

Therefore, adds Coghlan (1994), when it comes to issues of change, the deeply embedded traditions and assumptions which are held by the members of a group or organisation play a key role in determining whether change is facilitated or resisted.

2.3.1.2. External organisational culture

The whole environment that surrounds one organisation has direct influence in the relationship, and therefore the communication process between employees and management (Wiseman and Shuter, 1994). Trade unions, political parties, the country's economical situation, and even the national culture have a significant influence on organisational behaviour.

Trade Unions are an important external factor to examine, considering their strong influence on the behaviour of the employees. For example, weak trade unions hardly reflect on the management decisions; in other words, companies are a little more free to deal with employee matters and related changes. On the other hand, the strong influence of the trade union may be very painful for both employees and company, especially if their relationship is weak. When both Trade Union and company do not trust each other this can destroy a possible good plan even before the negotiation, or it can be very time-consuming and stressful to the people.

It is important also to mention the weight of the national culture on organisational behaviour and how national values influence companies' actions. How societies are classified and how this would influence internal relationships are considered in this equation. As Hofstede (1980) identified in his studies, society can be divided in two classical forms: (a) the individualistic form of organisation, a strong characteristic of European countries and (b) the collectivist organisation, as presented by the Asian countries. Smith and Tayeb (1988) demonstrate in their research how people from collectivist countries, e.g. Japan, Taiwan, India, tend to gravitate to a single effective leadership style, as opposed to persons from individualistic cultures, such as US, Britain, who find a variety of leadership style effective (see also - section 4.6.2). When analysing how external parts affect culture and therefore the way organisational communication is handled it is important to consider how national culture influences the way one employee perceives information (Wiseman and Shuter, 1994).

2.3.1.3. Company structure

In order to achieve any success in a business process re-engineering exercise, certain changes in the organisational infrastructure must be implemented beforehand, Davenport (1993) stresses. An initial restructuring must happen in order to build up internal capabilities for process change before undertaking a BPR programme, say Hammer and Champy (1993). The fundamental restructuring processes are:

- reducing hierarchy;
- eliminating company's fat;
- reduction of bureaucracy and paper work;
- re-defining job position, since fewer people will be necessary.

These restructuring processes are essential to allow people to work around business processes (horizontally). Now, rather than having a pyramidal structure companies would be organised in a network structure (ring structure), where people operate at the same level, in order to facilitate the communication flow, and speed up the processes' outputs. Semler (1993) proposes that communicating mostly horizontally instead of from top-down, as suggested in pyramidal structures, will reduce the overall operational time and costs, once less paper work is needed, and presumably less re-work, because people in the new structure are stimulated to more direct contact, and checkouts would be facilitated.

Re-engineering, according to Hammer and Champy (1993), cannot work on top of heavy hierarchical structures, which generally imply an obstruction to natural flow process.

2.3.2. Investigating methods of re-engineering processes

Many academics and non academic BPR writers support the idea that business processes are the 'brain' of any re-engineering project. In order to get the 'brain' working efficiently there are theories which say that we have to learn about our potential, what we can do better and how this can be achieved. In this way, we could eliminate things we are not good at doing, and delegate to others the responsibility of that work.

In business, the potential resides in the use of its processes. A business process can be seen as a value chain and learning about this chain represents a vital step towards any improvement in a BPR project (Hunt, 1996).

Everything we do is a process (macro scale view) or it can be just a task, which is simply part of one process (micro scale view). Some processes (such as programming) may be contained wholly within a function. However, most processes (such as developing a new product) are cross-functional, go across many departments within an organisation chart (Talwar, 1993).

Having a precise understanding about what, how, why and how many processes exist within the company it seems to be an essential requisite to operate a business, or to be in

'business', at the first place. However, in reality companies just know the evident parts. Being able to answer the questions 'what, how, why, and how many' (mapping process) represents an important strategy in building up a sense of priority. Which process is not good at all and should be eliminated, which process is worth re-engineering, and finally which processes do not need to be touched at all. With that information available, the next step towards an improvement in the change programme is the benchmarking process. By identifying where those processes are against those of the competitors, and what are the competitors' best practices, chances of better results are at least supported by coherent fundamental knowledge.

Sections 2.3.2.1 and 2.3.2.2 define the potential efficiency of mapping and benchmarking methods when an organisation undertakes business process re-engineering (BPR).

2.3.2.1. Mapping Process

The benefits of analysing and re-thinking a business process results in a better understanding of all the paths of a process which means the efficiency of the work can be improved. Sometimes eliminating non-valued-added steps of that process, or merging two processes creating more efficient outputs, or eliminating the process totally may be the best answer (Harrington, 1991). A decision on one of the options above will come to the surface whenever the senior management decide to undertake this analysis project.

To assist in this project, Hunt (1996) suggests the use of a method called 'Process Mapping'. This technique provides tools for identifying the company's current business processes as well as its internal sub-processes and finally the related tasks. In other words, it can be used as a road-map for re-engineering products and services. According to Hunt, the method can be divided into five categories:

(1) Simple flow-chart graphic software
(2) Process mapping products
(3) IDEF process mapping products (IDEF - Integrated Definition Language)
(4) Process simulation products
(5) Process-mapping-related ABC products (ABC - Activity based Costing)

In addition, Love and Capon (1996) say that the purpose of these mapping tools is to agree understanding of current processes, and to establish a baseline from which improvements could be measured, analysing their success against the BPR targets.

2.3.2.2. Benchmarking Process

Shetty (1993) defines benchmarking as a process of identifying, understanding and adapting the best practices from within the same organisation or from other businesses to help improve performance (figure 3.2). The preparation stage of benchmarking as Fisher (1996) argues is the most critical. Until an organisation understands its business processes it is difficult to compare them with these in other parts of the organisation, or with those of external sources. Once the mapping process has helped the organisation to understand its operations, benchmarking findings can be used to create the catalyst for change and provide input into key stages of the exercise (Talwar, 1993).

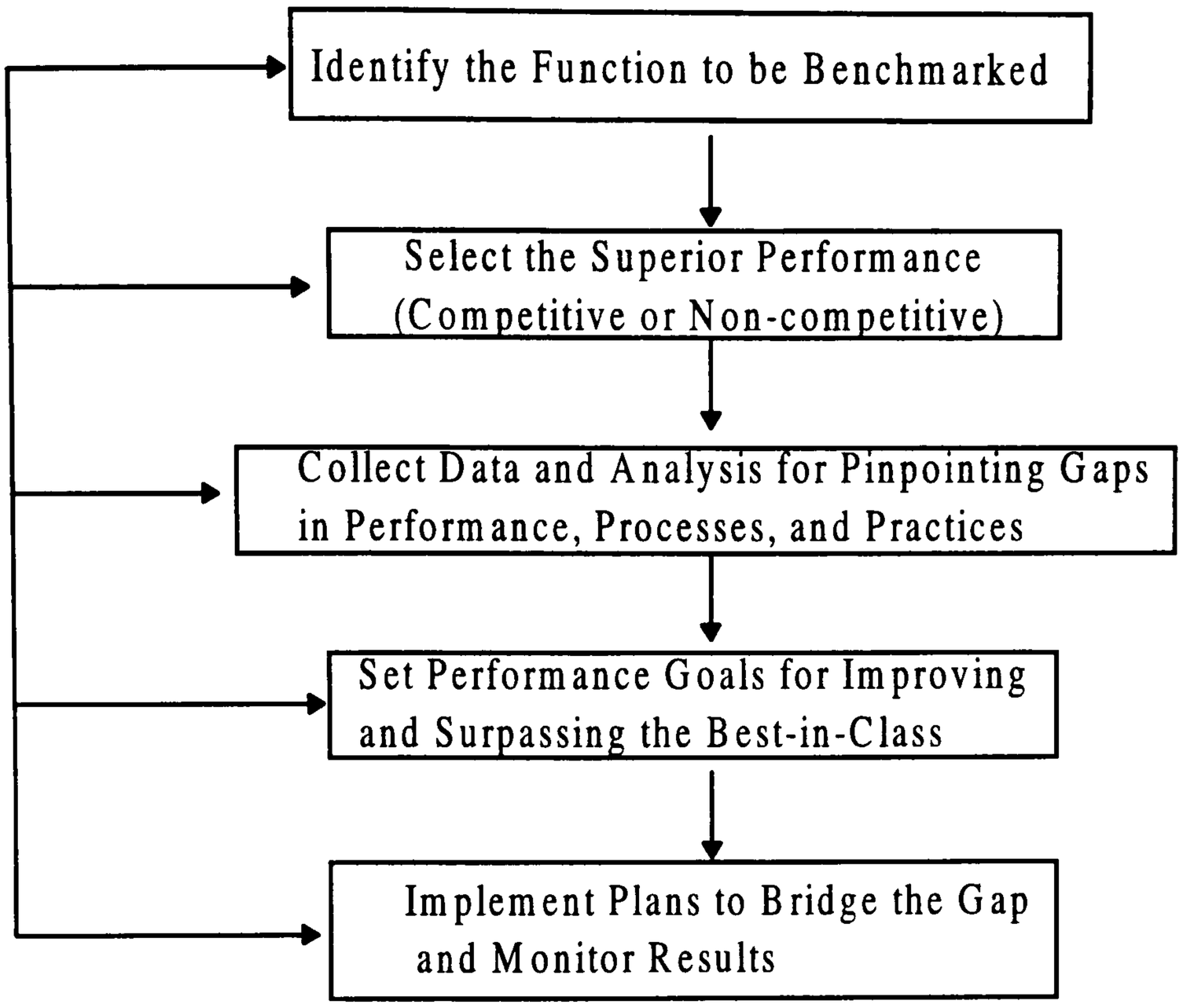

Figure 2.2: Process of benchmarking (Source: Shetty, 1993)

Parker (1993), however, stresses that although the emphasis of re-engineering is on business processes, it is people that will make re-engineering a successful project. In this context, section 2.3.3 examines the value of people within the BPR equation.

2.3.2.3. Conclusion

The simple use of benchmarking and mapping techniques demonstrate right at the beginning of a BPR plan how important is the issue of 'organisational communication' for such a project. In other words, benchmarking by itself is purely a communication procedure where companies involved exchange information and/or experiences. Being aware of the appropriate communication approaches and interview techniques represents a vital strategy to the success of benchmarking. Along the same lines, mapping

techniques demand of the business the use of diverse communication tools to trace exactly 'what', 'how' and 'why' a process exists.

Those techniques not only involve communication tools and procedures but, most important of all, people. This exercise represents an opportunity to the people involved to broaden their perspectives, which may help them afterwards to help others to understand the big picture of the business.

Furthermore, analysing what people really do and showing the linkage needed between one step and another will give employees a better insight of the broader picture.

2.3.3. Analysing roles and responsibilities

If the business process is the brain of a re-engineering project, the industrialists interviewed in this research and most of the BPR authors agree that the heart of it is the people. Spiker and Lesser (1995) allege that process engineering may have significant impact potential, but trying to revolutionise corporations by process re-engineering without first re-engineering the human resource would be like trying to improve the performance of a computer by upgrading its software without training the operator in its use. If the heart fails, the brain may take a little longer but will fail too. Greehan (1994) stresses that attracting good employees, changing people's attitudes by educating them towards a more empowered working concept and finally, motivating them to work all together aligned to the core BPR objectives are high priorities to put in place in order to re-engineer a business.

Therefore, if the re-engineering ambition is to work cross-functionally through business processes then the roles of the employees within the company must be revised (Harrington, 1991) to match also the flexibility demanded from such an horizontal structure. In order to combine people's activities in such a way that individual outputs linked together will result in improved processes, it is fundamental that certain traditional company patterns change, as presented in the table 2.1.

ORGANISATIONAL FOCUS	PROCESS FOCUS
■ employees are the problem	■ the process is the problem
■ employees	■ people
■ doing my job	■ help to get things done
■ understanding my job	■ knowing how my job fits into the total process
■ measuring individuals	■ measuring the process
■ change the person	■ change the process
■ can always find a better employee	■ can always improve the process
■ motivate people	■ remove barriers
■ controlling employees	■ developing people
■ don't trust anyone	■ we are all in this together
■ who made the error?	■ what allowed the error to occur?
■ correct errors	■ reducing variation
■ bottom-line driven	■ customer driven

Table 2.1: Organisational Versus Process Focus (Source: Harrington, 1991)

A few years ago, when companies just wanted employees who would do only what they were told, some tools such as employee surveys and management by walking around were just appropriate. Undoubtedly, they can still produce useful information to satisfy routine issues like canteen services and training needs. However, what these tools do not do is encourage people to reflect on their work and behaviour.

Working cross-functionally demands new organisational structure as well as new employee roles. It comes, Argyris (1994) suggests, with a progressive need for a team effort attitude, empowerment and a sense of partnership by sharing and assuming responsibilities for the outputs. It is vital to the success of a re-engineering project that

the new partners - *companies' people* - feel motivated to improve and create challenges (Bowen and Lawler III., 1995).

2.3.4. Business changes towards a human centred approach

In the past, machinery and technology were considered to be the only competitive source of improvement able to help businesses overtake competition. In other words, organisations believed that the next piece of the work shop, the next new machine, the next inventive design would put them in unique position and it would give them the lead in the market sector (Recardo, 1995). In those times, however, there was less competition and those who could afford the price of the technology were even fewer. Nowadays, technology is a default: if you cannot afford it you are not in business.

Quality programmes were fundamental in the 1980s. However, the 1990s came, and again quality became a default in business. In this context, business process re-engineering (BPR) emerged with a more human-centred approach, however (Hammer and Champy, 1993).

Cooper and Markus (1995) propose that the centre-piece of a BPR strategy is to focus first on changing people's attitudes toward change and then encourage the management to re-think the roles of communication to enable more interactive work. Cooper and Markus say that organisational communications should be proactive, rather then reactive, and all messages should flow consistently and repeatedly through many diverse channels. Gillete (1994) advocates that any major organisational change can be achieved

successfully by enhancing communication. His emphasis is on the use of horizontal and vertical communication, rather than on the traditional vertical way. Section 2.4 describes in more detail how BPR writers perceive the role of communication within a changing environment.

2.4. Communications role within business process re-engineering

Re-engineering a business requires strong commitment to the culture of information (Knorr, 1993). Working in a business process structure implies people should be grouped in teams for more efficiency whereas, in a functional structure, the individual execution of tasks was very appropriate where nobody had responsibility to the overall process, but only to their particular task (Hammer and Champy, 1993). Therefore, most of the time people are unaware of the results of their work at the end of the business line. Consequently, communication is very much on a need-to-know basis. A business process approach, however, demands more interaction among different areas and a team-working attitude. For instance, the feedback of information, as well as the involvement, interest and commitment are fundamental to the broader picture.

Although very often the current BPR bibliography stresses the vital importance of communications on a re-engineering exercise, there is no previous work describing how companies involved in this type of project have been working with this issue. In an attempt to fill this gap, chapter 5 describes with appropriate details the current

communication procedures adopted by the eight Brazilian and British re-engineering case studies.

The next section examines the background communication theory offered by the specific literature on corporate communication.

2.4.1. Communication theory

The word communication embraces a wide range of meaning, centring on the concept of sharing (Adair, 1973). It includes the means as well as the ends of human social intercourse. The author stresses that all communication is a pattern of lines or relationships between these points:

(1) Communicator: A communication in the deliberate or conscious sense implies a person who sends a message.

(2) Communicant: If in the language of grammar the sender is the 'subject' then the receiver is the 'object' to whom the message is directed.

(3) Aim: The intention of the message is the purpose in the sender's mind for sending it; it is the reason why any communication is taking place.

(4) Content: The substance of the message, its component ideas, facts and less obvious value contents.

(5) Methods: How the message is conveyed, e.g. by writing, speaking or signs.

(6) Situation: The context or environment in which the communication takes place.

A major contribution to our understanding of communications came from the introduction of the concept of feedback. Wierner (1946) coined this term in an influential book entitled 'Cybernetics: or Control and Communication in the Animal and

the Machine'. Wiener compared communication to a system which loops back on itself; the parts are linked together in a cycle of activity, which he called feedback. However, Scott (1962), comparing the circular theory above (feedback) with electronics systems, built a list of common faults or communication problems that could happen if the company adopted purely the circular theory:

(1) Timing - coordinating messages in such a way that they are received either simultaneously or sequentially by different receivers.

(2) Overload - reception of messages in such quantity that the receiver is overwhelmed and unable to respond intelligently.

(3) Short-circuiting - the omission of one or more persons in a vertical or horizontal communication chain.

(4) Distortion - differences in meaning of messages as perceived by senders and by receivers, due primarily to different job or positional orientations.

(5) Filtering - conscious manipulation of 'facts' to colour events in a way favourable to the sender (especially upward communication).

The circular or systemic model, therefore has certain drawbacks. Circles and systems can imply a concentration on social maintenance. The positive aspects offered in the feedback system may be demeaned by the fact that information goes around for the sake of traditions and outdated values. It represents a risk of saturating a process without any forward progress.

More recently, attempts have been made to develop the circular model while retaining the cybernetic dimension of communication as a dynamic process. Dance (1967), the editor of a symposium entitled 'Human Communication Theory', having noted the limitations of the circular model, suggested that the recently discovered double helix

structure of the DNA molecule might provide the clue and offered this model for communication (figure 2.4).

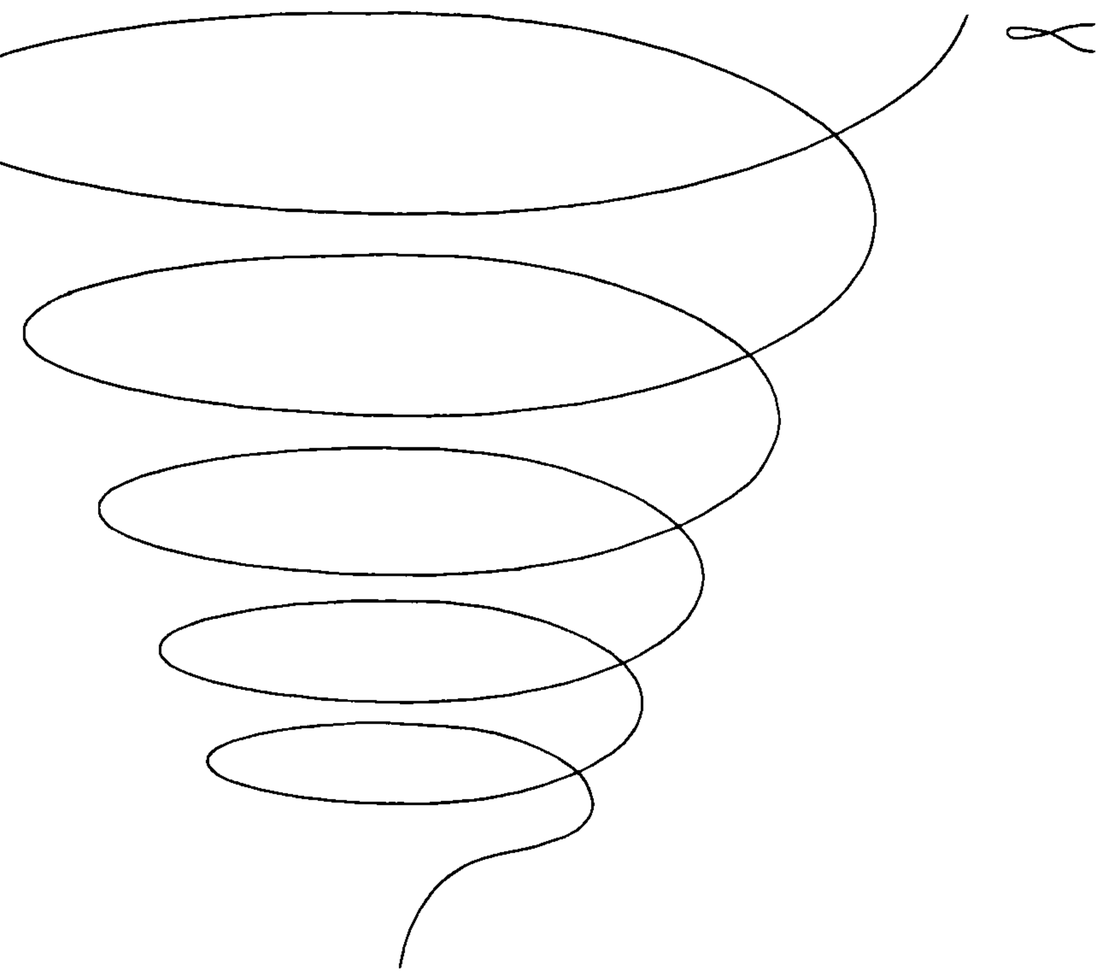

Figure 2.3: Helical model of communication (Source: Dance, 1967)

The helix combines the desirable features of the straight line and of the circle while avoiding the weakness of either, wrote Professor Dance:

> "The helix presents a rather fascinating variety of possibilities for representing pathologies of communication. If you take a helically coiled spring, such as the child's toy that tumbles down staircases by coiling in upon itself and pull it full out in the vertical position, you can call to your imagination an entirely different kind of communication than that represented by compressing the spring as closely as possible upon itself. If you extend the spring halfway and then compress just one side of the helix, you can envision a communication process open in one dimension but closed in another. At any and all times, the helix gives geometrical testimony to the concept that communication, while moving forward is at the same moment coming back upon itself and being affected by the curve from which it emerges. Yet, even though slowly, the helix can gradually free itself from its

lower-level distortions. The communicative process, like the helix, is constantly moving forward, and yet is always to some degree dependent on the past, which informs the present and the future. The helical communication model offers a flexible and useful geometrical image for considering the communication process".

2.4.1.1. Conclusion

The theoretical models described above were illustrated as a background to the later explanation, in chapter 5, of how organisations have been in the last few years driving, or at least envisaging their internal communication model.

Certainly the straight line communication model (one-way communication), very much used since the industrial revolution and the first management theories, has given way to a two-way communication, although until recent times with a low feedback within the organisational structure (Fahs, 1982). Nevertheless, recent literature has indicated that companies of the 1990s are facing the challenge of understanding and implementing a kind of helical model, as demonstrated from the practical examples of the case studies investigated in chapters 4 and 5.

2.4.2. Communication tools

The methods or tools of communication chosen should be, Adair (1973) suggests, such that they contribute substantially to the achievement of the aim; anything else that has only a figurative proposition just represents a waste of resources like, for example, cake recipes and wedding news published within a company magazine. The strategies used to

address an issue should be planned as well as the appropriate tools for a specific aim. Because people learn in different ways, the accomplishment of the aim may take different routes to reach different receivers. Some people easily perceive visual information, others auditory, and others learn by doing (Meyer, 1991).

Whatever corporate communications tool is in use -

- the traditional communication tools; questionnaires, group meetings, briefings, memoranda, news letters, company magazines, training, board news, seminars, telephone, fax machine, etc.
- or the modern communication tools: e-mail, internet, video conferencing, internal network communication, video tapes / cassette tapes, EDI system (Electronic Data Interchange), 3D drawings, spreadsheets, IDEF, etc.

- researchers like Young and Post (1991) argue that rather than giving great emphasis on tools, what is missing nowadays and what people really seek is some humanising counterforce. The communication approaches towards people should be re-evaluated because people like to feel their opinion matters too. In other words, they say that companies need to understand how the information could be better received by their individual company's groups. What should be the best approach to make information more effective - more directive contact, easier language, more colour, bigger sizes in memos, fewer words, more numbers, louder sound, more graphics, or easier access to communication channels.

Marshall and Yorks (1994) say the most important challenge for managing modern company structures is to get communication facilities and the means of communication accessible to everybody who wishes to use it within the company. Different groups or levels would need more or fewer channels, but whatever the case all should know their rights as well as their duties as communicator and company partners.

Although the BPR literature does not illustrate ways of using traditional and modern concepts of communication towards the needs of the modern business, the findings illustrated in chapter 5 are rich in details of how different communication tools have been explored within this changing organisational structure. It shows also the different perception of the people and their views towards the benefits and risks of such changes.

2.4.3. Communication forms

Vertical communication represents an important pattern of communication because of the extent it achieves. It reaches all organisational structures, from top to bottom, involving both downward and upward flows (Hall, 1996). The traditional business organisation mostly carries information from top to bottom. In this regard, Hall (1996) presents five elements of downward communication, exemplifying the different forms in which it may appear within an organisation:

(1) The first and most common form is the job instruction, in which a subordinate is told what to do either through direct orders, training sessions, job descriptions.
(2) The second involves the rationale for a task and its relationship to the rest of the organisation.

(3) The third element is information regarding procedures and practices within the organisation. Similarly to the first element, it is relatively straightforward and non-controversial.

(4) The fourth element is the feedback to individuals regarding their performance.

(5) The final element involves attempts to indoctrinate subordinates into accepting and believing in the organisation's goals.

In the past few years, however, companies aiming to become more flexible and competitive have been in a constant struggle to reduce their structure, and by lowering their level of hierarchy they have been amplifying the use of horizontal channels of communication. However, some studies (Smeltzer and Fann, 1989) attribute the degree of horizontal communication to the size of the company. Smeltzer and Fann say that managers from small organisations placed much more emphasis on the importance of communication for co-ordination with much less formality than managers from large organisations did. This resulted in less vertical communication with more concern for internal and horizontal communication.

Furthermore, the flattened organisation that has emerged within the business environment in the past few years has created a critical need for interdepartmental or horizontal communications; therefore, it has been encouraging companies to develop more and more personal networks (McGoon, 1994). Two-way and face-to-face communication has therefore been emphasised in normal organisational routines stimulating the feedback process a great deal.

2.4.4. Communication purpose

The purpose of communication in organisations is usefully defined by Scott (1962) as how to achieve the common task, maintain the unity of the whole body and meet individual needs. The purpose, he says, has to be clear in order to make best use of the channels the company has.

According to Adair (1973), in a study carried out in two large American companies the content of communication falls into three areas:

(1) Purpose, aims, objectives, plans and policies
(2) Procedures, rules and normal standards
(3) Conditions of service, performance, progress and prospects

In simple terms, Adair's research demonstrates that these are the subjects people at work want to hear about. He goes on to say that the types of information which should be of best use to employees are:

(1) anything which gave them a better insight into their work, and its relation to the work of others in the company
(2) anything which gave them a sense of belonging to the company
(3) any information which improved their sense of status and importance as individuals in the company

2.4.5. Measuring results - another communication form

Lingle and Schiemann (1996) conducted a recent national survey with executives in the United States about the criticality of measurement to a manager. Their results strongly

demonstrated that measurement plays a crucial role in translating business strategy into outputs. Four mechanisms appeared as major contributors to the success of measurement-managed organisations:

(1) agreement on strategy
(2) clarification of communication
(3) focus and alignment
(4) organisational culture

However, although the emphasis on measurement has increased, Charan (1991) says there are still very few countable ways to measure value added by component process before and after a re-engineering effort and, therefore, very few ways to provide executives and employees with return-based assurances. Hammer and Champy (1993) imply that the measurement system is the only secure way to build people's confidence in the change project, because, if you show people *where* they are, it is more likely they see the reasons for change, and if the measures show *what* was achieved, it may help to build up more confidence in the project.

2.5. Other business management disciplines: Is BPR something new?

The old principles of manufacturing, for example Taylorism and Fordism, are under increasing strain from new communication technologies and new methods of management. Society readily embraces developments in information technology and this fuels increasing customer expectations for better service. Typically, organisations have experimented with a number of management tools, often implementing the next new

idea without first having completely absorbed and understood the previous one. This process causes confusion concerning the interpretation of the growing number of concepts and the jargon-rich vocabulary that now imbues management literature.

In the 1990s a new theory, Business Process Re-engineering (BPR) emerged and has become very fashionable. Many companies hoped BPR would meet their competitive needs without the uncertainties of previous management theories. BPR carries with it a new set of words, propositions, and concepts (Hammer and Champy, 1993; Davenport and Short, 1990).

Despite the fact that some industrialists and academics still consider BPR a fashion management jargon, there is an increasing interest for more in-depth studies involving re-engineering experiences. Many important authors in this field such as Hammer (1990), Davenport and Short (1990), Schmidt (1994), Harrington (1991) and others, agree that re-engineering shares some objectives with past management theories. However, there are some important differences such as:

(1) re-engineering is concerned not just with improving existing business processes, but rather questions the basic needs for the processes in the first place;

(2) re-engineering involves taking steps back and completely re-inventing the way work is done. It requires sweeping changes in management and organisational structures, redefining the way companies use technology and human resources.

2.5.1. Re-engineering and other key concepts

Getting re-engineering done is an enormous team project. It has to be done and it cannot be effective without the involvement of the majority of people (Dull et al, 1995), which is why concepts like partnership, empowerment, team working, networking, and coaching have always been related to business process re-engineering.

A background theory (definitions or common applications) of the concepts is presented below:

- partnership - it has been largely used as a way to share responsibilities and reduce costs by removing organisational boundaries to the benefit of all (Dull et al, 1995).

- empowerment - as a general definition it means 'redistribution of power' (Cooper and Markus, 1995) . However, Bowen and Lawler III (1995) define empowerment in an equation where '*empowerment = power x information x knowledge x rewards*'. Clearly the equation shows that if one of the elements is zero, the expected result is zero. In other words, if managers focus on power, for example, without redistributing information, knowledge and rewards certainly, as the mathematics prove, empowerment is fated to fail.

- team working - the most common reasons for implementing teams are, according Hutchings and Knox (1995), to open lines of communication, involve employees in their jobs and in the company and to induce people to operate cross-functionally. As a

consequence, the result expected is to reduce the time of project execution and the cost of the operation.

- networking - as Biemans (1996) says, networking concepts are turning out to be the key corporate communications tool. Its speed, flexibility, and broad line of action represent vital elements sought modern and competitive organisations. Cronin (1994) adds that a networked environment encourages employees to take initiatives, by gathering information, consulting with experts and solving problems collaboratively.

coaching - according to Hammer and Champy (1993), coaching represents a change from the boss concept, where managers will stop acting like supervisors and behave more like coaches. Coaches are expected to help teams solve problems. They are not in the action, but close enough to it so they can assist the team in its work.

2.5.2. Information technology within a BPR context

Potentially, information technology (IT) offers substantial elements to assist with the re-design of a business process by facilitating different working practices, or innovative ways of linking a company with customers, suppliers, internal stakeholders (Harvey, 1994 and Hammer & Champy, 1993). However, concerns appear in the literature when analysing the issue 'usage *versus* investment'. In other words, how efficiently the company's structure and personnel can convert the investment of IT on real value to the end process. Does the process focused need IT? Furey et al (1993) argue that the IT solution is far less important than educating employees to use IT as both a strategic initiative and as a tool in the re-engineering process.

Although, as demonstrated by Xerox Corporation (Earl and Khan, 1994), when they re-engineered their logistics management process with a relatively simple decision support

system on top of their existing information system where it is possible to redesign a process without the use of or large investment on IT, many authors (Davenport and Short, 1990) recognise its value due to its valuable applications considering the actual urgency in the business for speed, better communication, more efficiency and flexibility. Such needs can at least theoretically be solved by the implementation of IT applications such as shared databases (systems), and networking which allows integration and which can also facilitate both acquisition and dissemination of data through a process (Harvey, 1994).

Without contesting the use or not of IT, Galliers (Burke and Peppard, 1995) proposes a critical analysis of the role of IT in BPR. Consideration should be given to the kind of the re-engineering features required for a specific company's vision, as each situation is unique for different companies. He suggests companies look at the scenario in which they are involved to judge the need for a radical or incremental change based on a balanced socio-technical perspective to define then the role IT might play in the organisational change.

2.6. Summary

This chapter has described important aspects of the business process re-engineering concept, such as:

- its definition;

- how important it is to understand what you are doing or dealing with, by using methods like mapping process and benchmarking;

- the value of understanding the environment; the internal and external company's culture;

- the value of understanding the new role of the company's human resources within a different context;

- the essential need to build bridges (corporate communication) which can link visions to results. The theory of communication was presented in the light of human observations, illustrating where this bridge can be inspired;

- and finally, its position against other management theories.

In essence, the intention of this chapter is to leave clear the importance of understanding first the broader picture of the organisation. In other words, no big investment in information technology, quality programmes, a merging, and no isolated projects of cost reduction, elimination of waste or training has achieved the expected results. Therefore, the research issue that is put forward is that what the businesses are missing are the links, particularly cross-functional processes and corporate communications strategies.

The next chapter explains the methodology used to conduct the exploratory research and the reasons why the qualitative approach was seen as the most appropriate.

CHAPTER 3

Methodology of Research

3.1. Introduction

The intention of this chapter is to describe the thinking processes used to support the findings of this research project. Having selected the 'problem area' of closest interest to the researcher, much effort went into identifying the viability of the work: to what extent this issue had previously been investigated, what would the research focus be and if the research could generate a contribution to the field.

Determining the type of research that would best fit the 'problem' was the first step to be evaluated. Bryman (1988) suggests that researchers should analyse the type of research question posed, the extent of control needed over behavioural events and whether the focus should be based on contemporary or historical events.

Identifying the right questions to frame your preliminary ideas, is according to Yin (1994), a way to discover on a scientific basis the best strategy that suits the problem. The following table shows a range of research options that can help identify a suitable research strategy:

Strategy	*form of research question*	*requires control over behavioural events?*	*focuses on contemporary events?*
experiment	how, why	yes	yes
survey	who, what, where how many, how much	no	yes
archival analysis	who, what, where, how many, how much	no	yes/no
history	how, why	no	no
case study	how, why	no	yes

Table 3.1: Relevant Situations for Different Research Strategies (Source: COSMOS Corporation - Yin, 1994)

The research topic 'business process re-engineering' is a very contemporary topic which still comprises many elements of uncertainty. The theory of BPR has been developed in conjunction with 'experimentation' in many companies which have been trying to implement this new management concept. Mostly, BPR practitioners have been their own 'guinea pigs' testing concepts which have not yet been proved to work efficiently.

Therefore, the paths to be investigated are many, leaving to the researcher the choice of selecting a relevant issue. In order to gather enough data to assist in the production of reasonable answers to the field, the research strategy that was chosen was based on a small number of case studies, aiming to concentrate on a deep investigation of a few examples. A case study approach was chosen because of the essentially exploratory nature of the research.

The remaining sections of this chapter detail the process of research adopted in the present work. It also describes the theoretical methodology for similar case study projects.

3.2. Literature Review

As part of the methodology, the literature investigation demonstrates an important step towards the establishment of the necessary know-how of the state-of-the-art within the selected field.

The term Business Process Re-engineering (BPR), the area being examined, has been used since 1990 when it was first coined in an article by Michael Hammer, an American management consultant. Until the middle of 1994 the consideration of this area was mostly under consultants' speculation. Academics began to investigate and obtain material published on this issue later in the same year.

This demonstrates the difficulty the researcher faced initially in finding enough background study to underpin the research project. However, in making use of the few academic and the majority of non-academic publications, it was identified as being an issue of high interest within BPR, with no in-depth studies about it, a 'gap' to be investigated; corporate and employee communication.

Again, in terms of the literature, not much has been written about communication within a BPR exercise, except that the majority of the authors have elevated corporate and

employee communication to much greater strategic position than ever before (Young and Post, 1994).

Having identified the focus to explore within a business process re-engineering project, the next step was to explore in-depth the research strategy to be used: establishing a rigorous methodology for selecting case studies; gathering, classifying and analysing the necessary information which is expected to result in the contribution of the researcher to the field.

3.3. Choice of research strategy

The literature on social research has undoubtedly assisted the researcher on the selection of appropriate research strategy. There is, according to Smith and Dainty (1991), a variety of research methods available to the social scientist and the selection of one of those methods varies according to the purpose of the research.

Having, at the initial stage of the research, a limited theoretical source of investigation and verifying the existence of gaps not yet explored within the chosen area, an exploratory (case study) research was presented as a logical path to follow.

The exploratory study was designed to fulfil three basic purposes:

(1) to satisfy the researcher's curiosity and desire for better understanding of the field;

(2) to test the feasibility of undertaking a more careful study;

(3) and, to develop the methods (model) to be employed to better assist other cases.

The research strategy was defined after intensive investigation of the social science literature. A clear research process designed by Babbie (1992), see figure 3.1, helped to clarify the definitions, strengths and weaknesses of the most commonly used methods in social research.

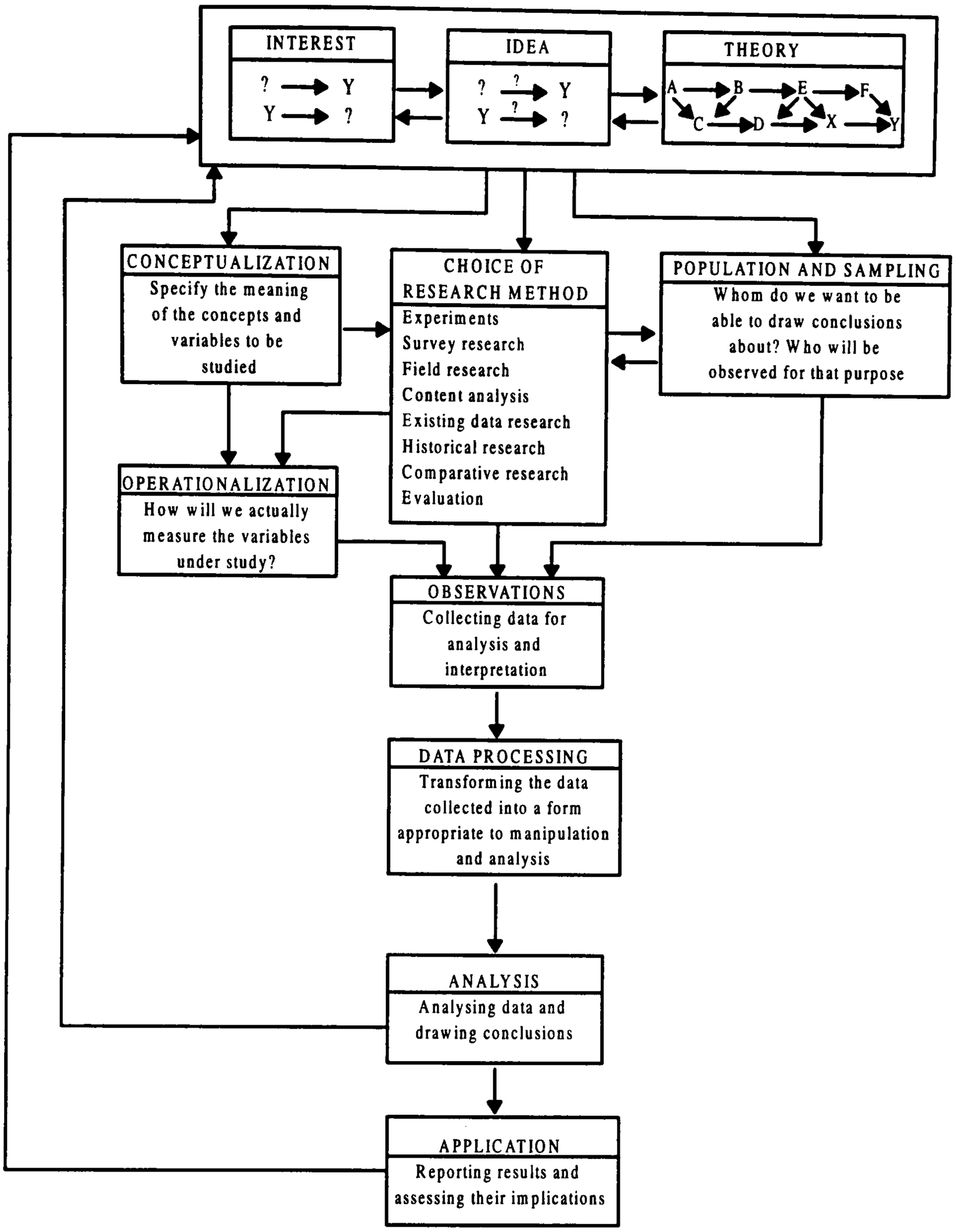

Figure 3.1: The Research Process (Source: Babbie, 1992)

Previous chapters have presented the conceptualisation of some matters of interest, such as corporate communication, business process re-engineering, etc. This chapter has so far covered the 'why's' of the research method chosen.

To summarise the strategy and methodology of the project, a schematic representation of the research development is illustrated in sections 3.3.1 and 3.3.2. In this way, the reader can gather a global understanding of the full research process.

3.3.1. Developing the research methodology

The elaboration process of the research objectives is summarised on the basis of four initial main assumptions:

(1) a multi-site type of research investigation would broaden the perspective for generating new insights from the organisational environment. Prospective outputs from the diverse case studies investigations were expected to produce findings which could be of greater organisational practical interest;

(2) by comparing two different countries it was expected the spectrum of research observations could be greatly enriched, broadening the range of contribution to the field;

(3) participants from different hierarchic levels could contribute different perceptions, experiences and values which were thought to be of importance for in-depth exploration;

(4) as the research problem had a strong linkage to human aspects, the use of a qualitative methodology for data collection and analysis was thought to reflect more closely in-depth human explanations of the facts. Successes, failures, and changes resulting from the re-engineering programme adopted could be richly described by qualitative data.

To complement the three premises discussed earlier in section 3.5, which justifies the employment of qualitative research methods, the assumptions described above are presented to support the choice of a qualitative research approach. The premises and assumptions generated the subsequent research methodology, which is chronologically illustrated in figure 3.2. Based on those assumptions and premises the general research methodology took place. The development of such methods aimed to fill, in the appropriate time, the prevailing research needs and gaps. Such development in research and methodology was progressively opening the way to elucidate the research problem.

The research development process (figure 3.2) is illustrated in chronological order aiming to promote a broader and clearer view of the work by covering the diverse phases involved in the construction of the project, in other words, justifying the 'means' of the research. Such processes also represent the personal contribution of the researcher towards a methodology which was genuinely believed to aid the achievement of the final research goals - to offer a practical contribution to the re-engineering field.

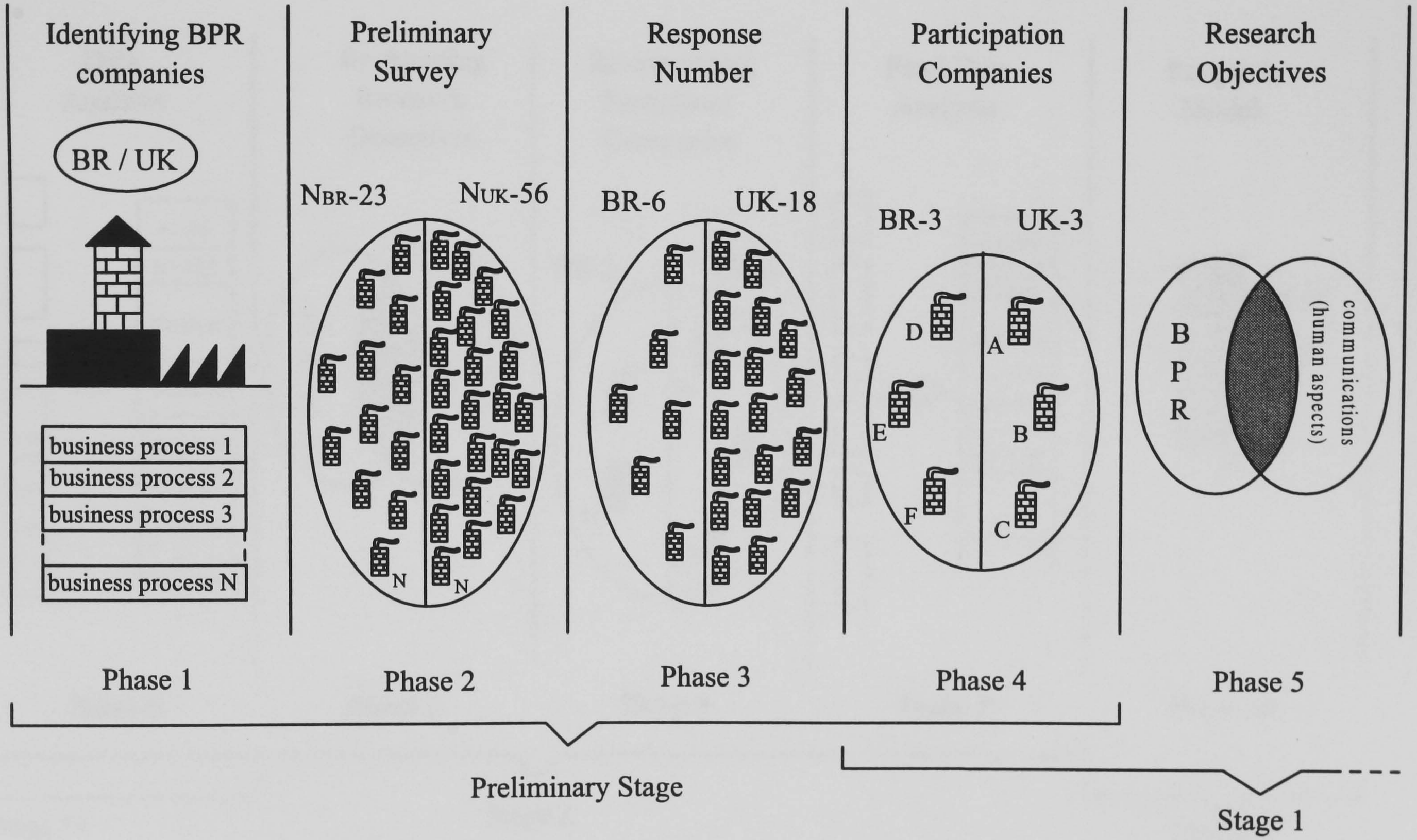

Figure 3.2(a): Schematic representation of the research development process

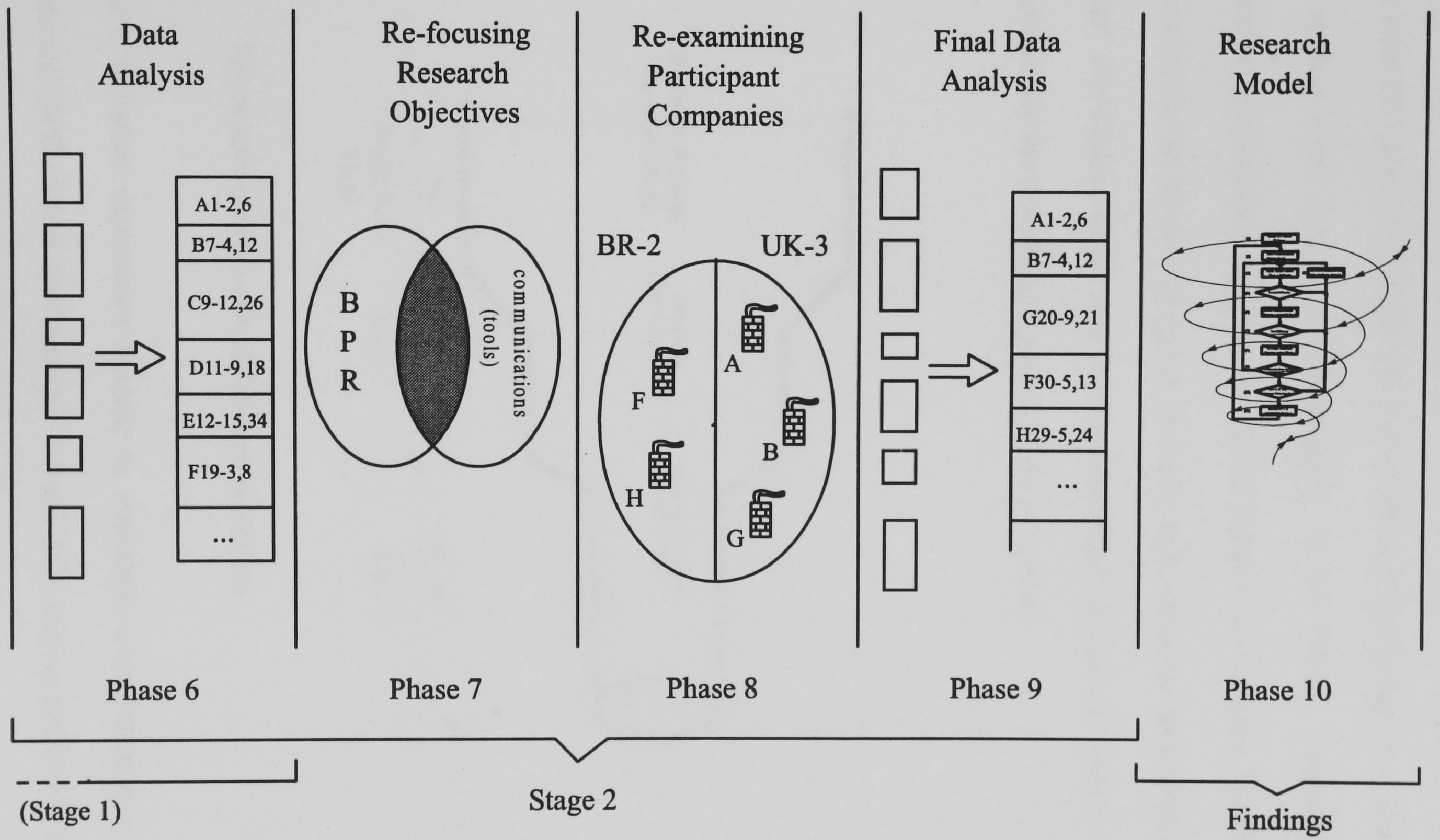

Figure 3.2(b): Schematic representation of the research development process

3.3.2. Research methodology enabling research focus

The development of the methodology described in figure 3.2 progressively supports the initial research objectives which had the intention of exploring and understanding the most spoken about management philosophy of the 1990s - business process re-engineering [preliminary stage (figure 3.3) ⇔ phases 1 to 4 (figure 3.2a)]. This section explains briefly the research progress; however, at this time the treatment is based on the 'subject' investigated rather than the 'methodology' in practice. Figure 3.3 illustrates chronologically the research progress in terms of content.

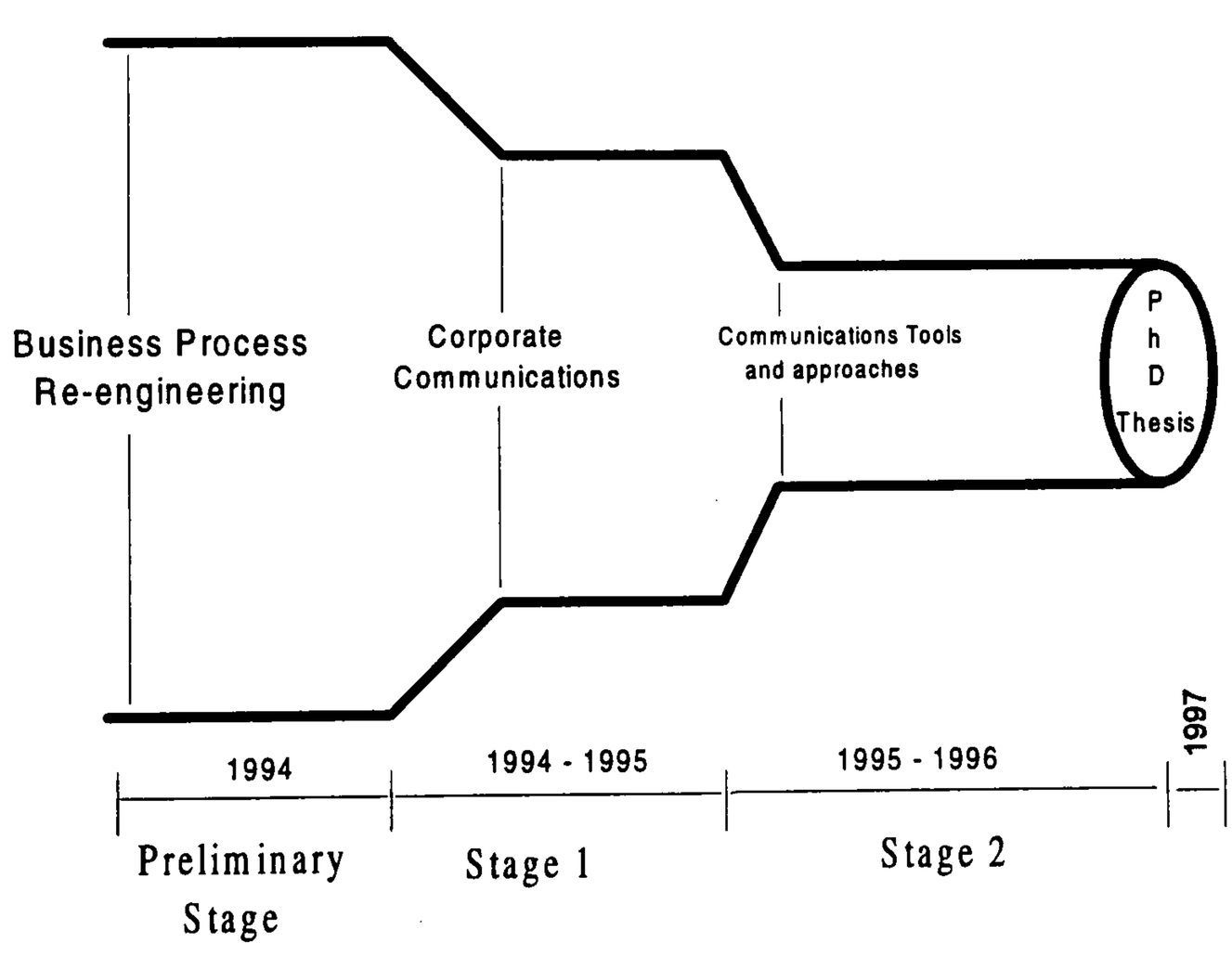

Figure 3.3: Summary view of the research progress

Intensive literature exploration pointed to corporate communications aspects as a fundamental BPR enabler (see sections 1.2 and 3.2), and as previously discussed, the existing gaps relating to 'communications' appeared as a substantial topic to be

explored, with greater practitioner interest [stage 1 (figure 3.3) ⇔ phases 4, 5 and 6 (figure 3.2)]. This situation matched exactly with the personal investigator's interest which was to study an area of direct industrial need. Secondly, it was an objective that the findings would result in some contribution to the management area.

Ongoing investigations narrowed the scope of the research project to the corporate communications approach (see section 3.5.4). Instead of concentrating the studies towards a human centred view only, it was decided, for reasons already explained in chapter 3, to re-focus 'communications' to a more technical analysis, thus investigating the use, effects and applicability of communications tools within a changing environment [stage 2 (figure 3.3) ⇔ phases 6, 7, 8 and 9 (figure 3.2b)]. The investigation of the influence of the communications tools and their approach and use was fundamental to determine whether well-developed communications structures are actually the answer to the success of changes proposed by BPR. More detailed research findings are presented in section 6.4.

It is intended that the following sections of this chapter explain the continuous development of the research process of the present work.

3.4. Research Focus

Once the interest in the topic generated an idea to be investigated, this resulted in the identification of a problem which then led to the creation of the research focus.

The research focus formulated was that:

> '... a well-developed communications infrastructure could significantly improve the success rating of a business process re-engineering project.'

In-depth investigations were carried out on eight case studies. As later research findings indicated, the research focus was simple in form but complex in content. The complexity in content arose from the fact that the researcher, at the initial stages of investigation, observed the importance of understanding to a certain extent how the communication issue was perceived between changing leaders and the rest of the employees. In this exploratory investigation, controversial and difficult subjects such as feelings, perceptions, loyalty, trust, reliability, etc., proved to be predominant when talking about changing programme and employee communication. However, after gathering the essential elements needed to be considered, in terms of the human aspects of communication, the work became directed towards a more technical communication focus - the tools and procedures required when re-engineering a business process.

Many reasons were considered before re-directing the work to more technical aspects. The two most critical were: (a) the inexperience of the researcher in the involvement of psychological aspects of the human resource field and (b) the time imposed to the conclusion of the project, considering that such a complex subject would need more than the three years' grant project available.

Chapter 5 investigates with appropriate details the move from the human approach investigation towards the technicality of communications, and also covers the whole

process used to examine the research issue raised. Chapter 7 demonstrates the arguments which demonstrates the importance of the research focus within the BPR context and investigates the validity of the methodology and the consequent findings.

Section 3.5 describes in detail the selection process of appropriate case studies.

3.5. Qualitative investigation

A qualitative investigation was used to gather substantial and in-depth data about the new role of communications within an organisational changing programme. The reasons which justified the employment of a qualitative method holds three basic premises:

(1) nature of research focus - the qualitative method represented 'the means' to test it;

(2) confirmation of what the literature has been describing about the tendency of re-designing communications tools and procedures, as well as its approach resulting from the re-engineering concept;

(3) interest to investigate attitudes, practices and experiences related to corporate and employee communication in companies based in two different countries.

Therefore, supported by the theoretical studies of research methodology, the explorative investigations based on field observation (qualitative strategy approach) were proved to be an appropriate choice.

A theory, which initiates the whole research process, entails an attempt to formulate an explanation about some facet of reality, such as 'why information technology, quality programmes have not busted the businesses to the flexibility and efficiency envisaged'. From this theory a specific research focus was formulated and subsequently investigated. Within this process it is vital to be aware that it is the generation of data to examine the research focus that in many respects constitutes the crux of the qualitative research process, reflecting a belief in the importance of systematically collected data in the scientific process (Bryman, 1988). Finally, it is the results of the tests by careful data analysis that will feed back into the stock of knowledge concerning the phenomenon being studied.

The structure of the quantitative research process that represents the model which this project has been following is illustrated in figure 3.4.

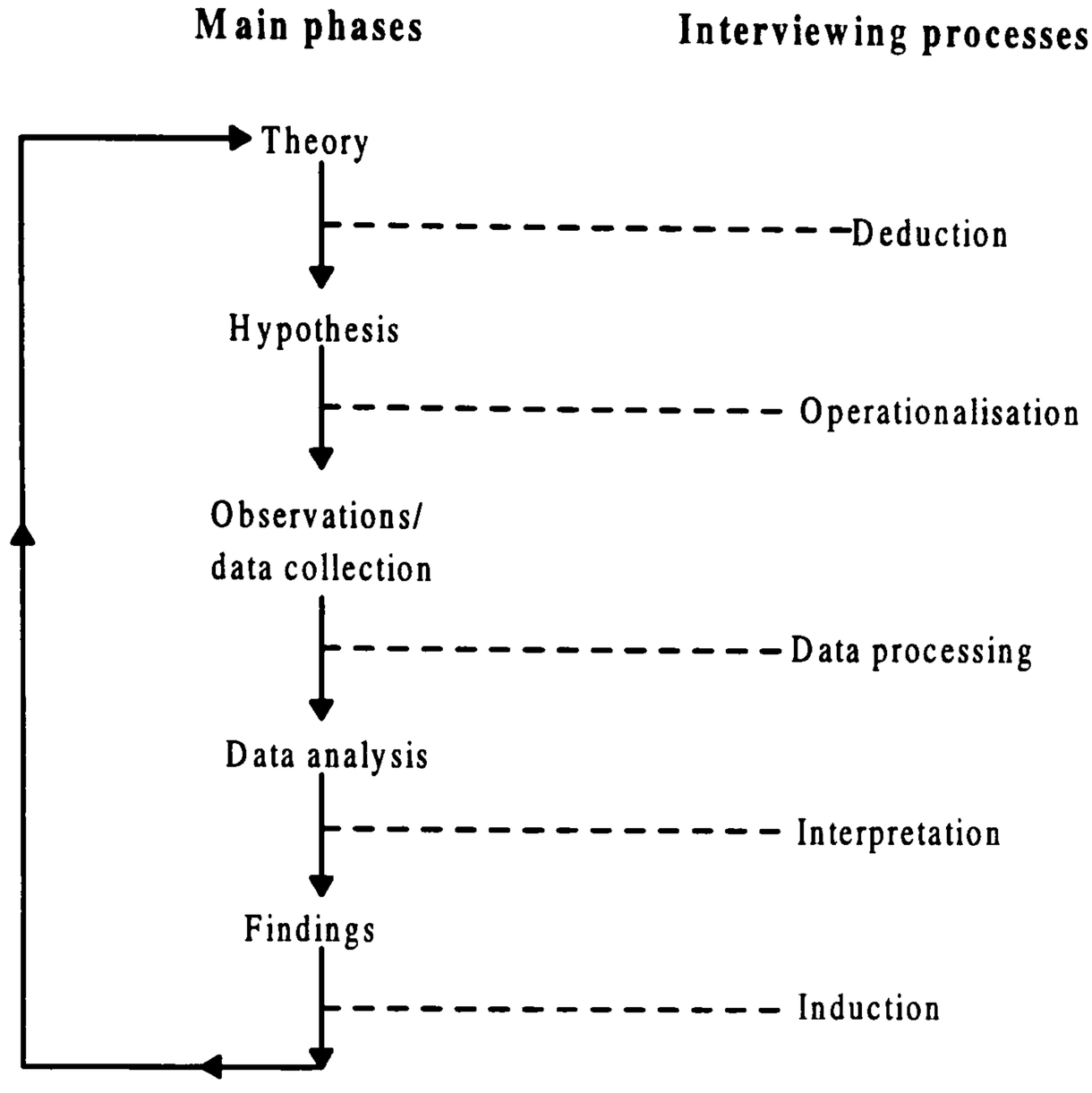

Figure 3.4: The logical structure of the qualitative research process (Source: Bryman, 1988a)

As Patton (1980) implies, qualitative data consists of detailed descriptions of situations, practices, people, interactions, and observed behaviour. Moreover, it provides depth and detail into the investigated field. This method is applied and recommended when the researcher wishes to understand and compare the points of view and experiences under different perspectives.

Qualitative methods can be used both to discover what is happening and then to verify what has been discovered (Bryman, 1989). The next step was to identify the appropriate case study to support this research investigation.

3.5.1. Preliminary investigation

A preliminary questionnaire (appendix 1) was formulated to gather information to assist in choosing appropriate participant companies presenting characteristics that satisfied the interest of researcher and the objectives of the project.

Two small manufacturing companies were selected with the objective of testing the questionnaire. It was expected, at this initial stage of research, to verify what would be the external response to the questionnaire and to identify its possible weaknesses. The contact with the managers of the companies, Glencast Ltd. and James Donaldson & Sons Ltd., both located in Scotland, was first made through seminars they presented at the research premises.

A telephone call was made to confirm with each manager their availability to assist and contribute with ideas to this project. Thus, the questionnaire (a mix of open and closed-ended questions) was posted to them, and a consequent visit to the companies' sites to discuss their feedback was also arranged for a later date.

The content of the questionnaire consisted mainly of queries such as:

(1) interviewee's previous knowledge about the term 'business process re-engineering';

(2) source where he or she learnt the BPR concept; seminars, journals, other company's experiences, etc.;

(3) interviewee's understanding of BPR;

(4) company's own experience with BPR;

(5) kind of employee's apprehensions with changing programmes;

(7) tools and procedures used to communicate changes;

(8) internal groups within the company that experienced greatest difficulties during any changing programme.

Arrangements were made to visit the company's sites, Glencast Ltd. and James Donaldson & Sons Ltd., and the point of these visits was to discuss face-to-face with the respondents their understanding about the questionnaire, in terms of clarity of contents and also the structure in which the questionnaire was presented (e.g., disposition of the questions - better sequence - value and difficulties of open-ended questions). Although the interviews were held with people working for distinct kind of businesses, their suggestions were very much alike.

As a result of this interview, three important messages were taken as a valuable contribution to this preliminary research:

(a) as managers, they usually felt annoyed when they had to answer open-ended questions. They attributed this to their lack of time. Moreover, they added, most of the managers find it very difficult to participate in such work, especially if they do not have knowledge of the subject under discussion. Because they find it difficult to return an incomplete questionnaire, they tend to put it 'literally' in the bin. They suggested that, when sending an investigative questionnaire to busy people, it should be based on closed-ended questions.

Moreover, closed-ended questions provide a greater uniformity of responses and can be easily processed (Babbie, 1992), which from a researcher's point of view can be greatly appreciated when dealing with a tight project dead line.

(b) The content for them was clear. However, as they did not have any knowledge of business process re-engineering concept answering was difficult. Therefore, a significant lesson taken was about the importance of identifying companies with greater knowledge of the subject to help with increasing the rates of responses.

(c) Finally, after the experience with the two companies interviewed, the difficulty in collecting information about BPR concept using as a case study, small organisations was clear to the researcher. This is consistent with the re-engineering literature where those case studies illustrated are only large organisations. The most likely chances of getting participant companies to this kind of research project were, therefore, to be obtained by concentrating on investigating large enterprises.

3.5.2. Selecting case studies

The preliminary questionnaire having been tested and re-designed, the next problem was how to identify a substantial number of BPR projects in order to collaborate the findings. Many companies' names were taken from publications. However, the largest number came from a list prepared from the Institute of Business Process Re-engineering (IBPR). This institute was founded in England with the intention of identifying and analysing BPR experiences in Britain.

The names of companies in Brazil were found mostly from a search of Brazilian specialised business magazines. From the list selected for the UK it was identified which companies also operated in Brazil. Then a phone call was made to verify if they were also implementing a re-engineering concept.

A letter explaining the interest of the researcher, and a closed-ended structured questionnaire (appendix 2) were sent to functional managers in 25 companies in Brazil and in 53 companies in the UK. The response rate was 28% and 36% respectively. Detailed analysis of this preliminary data gathering is described in chapter 4.

A list of 18 companies as possible case studies, 12 in UK and 6 in Brazil, emerged as a result of the analysis of the questionnaires returned. Those companies had the appropriate profile for the present research project. Some of the reasons why other companies were excluded generated interesting queries (Belmiro et al, 1997). The cases excluded fall under the following criteria:

- some of the questions were worded in ways to enable double checking the answers, and in some cases the contradictions were evident;
- comments like; *"We have been implementing BPR, however we call it 'continuous improvement programme' because we do not believe in breakthroughs";*
- vital questions were left open, although there were indications that they were involved to some extent in BPR projects;
- although the literature, or in some cases the IBPR, implied certain companies were involved in a re-engineering exercise, the respondents - the majority of them senior people - declared the contrary.

It was previously established that just a few case study companies would be sufficient to initiate deeper investigations about the subject. The main concern was selecting a case study which satisfied initial research requisites such as having some experience of BPR implementation. The next section examines how the negotiation process took place in order to gain access to some of the organisations on the list.

3.5.3. Participant companies - Stage 1

An important step towards the development of the research was concerned with negotiating research access to the organisations, and establishing effective relationships with the respondents.

More direct contact, as Bryman (1988) suggests, was appropriate at this stage of research for two reasons: first, it would help to improve the chances of convincing the respondents about the importance of the subject, and that the results could be used to the advantage of both, company and research. Secondly, getting to know someone promotes better chances of building a link, therefore facilitating trust and the acceptance of the researcher into the company. Face-to-face contact seemed to be premature as the companies were still many, therefore a telephone call was chosen for individual conversation with the respondents.

After this second contact with the companies six organisations firmly agreed to contribute with their time and expertise to this academic project. The other two

companies, to complete the total of eight initially mentioned, became involved with the project only at the stage 2 (section 3.5.4).

The initial six participant companies are:

1. Rank Xerox Ltd. - Glasgow / Scotland
2. Ethicon Ltd. (Johnson & Johnson company) - Edinburgh / Scotland
3. Michell Bearings Ltd. - Newcastle upon Tyne / England
4. CTBC - Telecommunication Ltd. - Uberlândia (MG) / Brazil
5. Electrolux Ltd. - São Paulo (SP) / Brazil
6. Xerox of Brazil Ltd. - São Paulo (SP) / Brazil

The results collected and their analysis at this stage of work are described in detail in the next chapters of this thesis.

3.5.4. Participant companies - Stage 2

The collection and analysis of data from the first stage of the research having been completed, a second set of interviews was planned. However, it was concluded that following the approach of stage 1 the researcher would not be able to complete the investigations on time, as proved in section 3.4.

The project re-design resulted in stage 2 of the research, which happened a year later after the initial investigations.

Following this re-alignment, two new companies were integrated into the project to satisfy the new requirements of stage 2 (section 3.4). The methodology of selecting and gaining access to the organisation is the same as explained in section 3.5.3.

The three companies CTBC - Telecommunication Ltd., Electrolux Ltd., and Ethicon Ltd. were excluded at the second stage because their experiences related to 'business process' did not satisfy the actual focus. Furthermore, it was decided to move the investigations from Rank Xerox (Scotland) to Rank Xerox (England), based on a recommendation from the managing director of the Scottish site that the manufacturing site in England could contribute more richness to the research because of their vast experience in re-engineering their business processes.

As a result, the participant companies selected for stage 2 are:

1- Rank Xerox Ltd. - Mitcheldean / England

2- Michell Bearings - Newcastle upon Tyne / England

3- Kodak Ltd. - Harrow / England

4- Xerox of Brazil - São Paulo (SP) / Brazil

5- General Motors of Brazil Ltd - São Caetano do Sul (SP) / Brazil

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How the participant companies were selected in the entire research programme having been described, the next section covers the methodology used to collect the necessary information.

3.6. Methods of gathering qualitative data

Data collection for case studies can rely on many sources of evidence (methods of data collection); however, as Yin (1994) suggests, the major sources are: documentation, archival records, interviews, direct observation, participant-observation and physical artefacts (see table 3.2). The methods available for data collection can be many, as stated previously, and the decision for which one to embrace will be closely attached to the research strategy and the methodology of investigation adopted - qualitative or quantitative (Bryman, 1989).

Having the intention to assist on the choice of the methods of data collection Yin (1994) offers a table which examines the strengths and weaknesses of each one of the six sources mentioned above.

Source of Evidence	Strengths	Weaknesses
Documentation	▪ stable - can be reviewed repeatedly ▪ unobtrusive - not created as a result of the case study ▪ exact - contains exact names, references, and details of an event ▪ broad coverage - long span of time, many events, and many settings	▪ retrievability - can be low ▪ biased selectivity, if collection is incomplete ▪ reporting bias - reflects (unknown) bias of author ▪ access - may be deliberately blocked
Archival Records	▪ [Same as above for documentation] ▪ precise and quantitative	▪ [Same as above for documentation] ▪ accessibility due to privacy reasons
Interviews	▪ targeted - focuses directly on case study topic ▪ insightful - provides perceived casual inferences	▪ bias due to poorly constructed questions ▪ response bias ▪ inaccuracies due to poor recall ▪ reflexivity - interviewee gives what interviewer wants to hear
Direct Observations	▪ reality - covers events in real time ▪ contextual - covers context of event	▪ time consuming ▪ selectivity - unless broad coverage ▪ reflexivity - event may proceed differently because it is being observed ▪ cost - hours needed by human observers
Participant-Observations	▪ [Same as above for direct observations] ▪ insightful into interpersonal behaviour and motives	▪ [Same as above for direct observations] ▪ bias due to investigator's manipulation of events
Physical Artefacts	▪ insightful into cultural features ▪ insightful into technical operations	▪ selectivity ▪ availability

Table 3.2: Six sources of evidence - Strengths and weaknesses (Source: Yin, 1994)

However, in this research it is considered of extreme importance for doing a high-quality case study that a degree of flexibility must exist for moving from one source to the other, whenever gaps are found that one source can not cover. Although the present project concentrates mainly on interviewing techniques, much of the information is

collected from companies' internal documentation and direct observation aiming to enrich the research objectives.

3.6.1. Interviewing

This research project was based on the investigation of eight companies, and a total of 30 interviews were carried out in a period of 16 months, between December 1994 and April 1996. The interviews were based on semi-structured questionnaires of an open-ended nature, which allowed the researcher to ask the respondents for the facts of the matter as well as their opinions about events.

This kind of interview is effective since it promotes the creation of a relaxed environment where the respondent also has the opportunity to give examples of situations where he or she has expertise.

During the total period of data collection, three interview techniques were used to gather the necessary information to fulfil the objectives of this research project. Because the nature of this research is about dealing with human affairs, it is important whenever possible to promote flexibility of action (Smith and Dainty, 1991). That is another reason why this research employed different approaches or methods of interview. The approaches used were:

(1) face-to-face contact: the main strength in this method is its ability to cover complex issues. It also gives flexibility to the interview in terms of the time to cover the topics, as

it is easier to negotiate possible extension of time, or another visit if the contact is personal (direct). Moreover, new topics can be added as they appear relevant to the research objectives. The access to talk with various employees from different organisational levels was an issue of importance to the research because it was possible then to compare perceptions and approaches of communications in distinct sides of the chain. Usually, this access was welcomed by the senior managers after a face-to-face brief explanation of the reason for the research (re-enforcement, from what was previously discussed by telephone), and the objectives of talking with another company's personnel.

(2) telephone / fax contact: a certain degree of flexibility can be obtained with this technique, but the pressure of time (telephone) or the length of the text (fax) and the less-personalised situation made the researcher opt for this method just to complement any gap left in (1) or (3). However, because time and budget constraints, the whole second stage of investigation in the Brazilian companies was done mainly by using fax and telephone contacts.

(3) mail survey: the positive aspect of this technique is the ability to survey widely dispersed samples at low cost. Certainly, the use of this technique was very important at the initial stages of this project, when the selection of appropriate case studies was the major issue. Although, the response rates tend to be low in a mail survey, this project has received very satisfactory rates: 28% from Brazil and 36% from UK. This method represented an important initial step to the development of the present research, as direct and even telephone contacts to find out the appropriated profiles required were

unrealistic at that stage of work, as a large number of companies was identified initially as potential participants.

3.6.1.1. Semi-structured questionnaire

Gradually, all attempts to structure in detail the questions for the meetings were eliminated; instead increasingly semi-structured interviews and unstructured 'conversations' with the respondents took place. The major reason for such a decision was based on the observation that usually structured interviews rely on heavy formality and the richness of face-to-face contact lost its effect, Bryman (1988). The possibilities of raising questions the interviewer has not even thought to ask, comes spontaneously from the informant's part because of the flexibility that a semi-structured approach can promote.

Therefore, the interview schedule developed was more like a list of topics to be addressed during the visit. It is important to have this list in order to keep track and control of the subject. Moreover, another important part of the methodology chosen is based on comparative examination between the case studies themselves as well as between the countries in consideration.

3.6.1.2. Constructing the interview environment

Planning an interview can be very hard for the amount of small, however important, factors to be considered before, during and many times after the actual visit (Bryman,

1988). Some of the factors described below were subjects where the researcher was aware of the value of getting it right:

(1) The process of establishing a friendly and open environment which would enable the interviewer to access the information desired very often starts with the visual impact. For example, it is not recommended to that one interviews a chief executive in casual or sports attire unless this is the way she or he dresses. On the other hand, one would not wear a three-piece business suit to interview shop floor people during the third shift. The interview subjects would probably be overpowered by the clothing and the people would not be willing to open up to the interviewer (Harrington, 1991).

(2) A quiet environment with no telephones would be preferable, particularly when time constraints existed, and there were difficulties about arranging another visit on the time-table of the interviewee. Secondly, noises and interruptions represent an aggravation to a recording process (Babbie, 1992) - if this method is used to store information - affecting seriously the quality of it. Moreover, such interruptions can be quite disturbing to the concentration of both interviewee and investigator. Very often an interruption would break down the sequence of thoughts, forcing the interviewee to re-phrase and re-formulate his (her) sentence, causing waste of time and even deviating the direction of the declarations, sometimes to areas of no particular relevance to the project. Again, the investigator had to spend more time in re-directing the subject.

In order to try to overcome such difficulties, when not proposed by the interviewee, the investigator suggested, prior to the actual interview, using a quiet office to facilitate a better development of the work.

(3) Introducing again the objectives of the interview before directing to the content of the questionnaire it is essential to reinforce the intention and nature of the work. Another important aspect to help 'build' an ideal climate for the interview is stimulating the respondent to talk a little about her or his work activities and expertise (Smith and Dainty, 1991). Furthermore, starting an interview by gathering general information about the company, the unstructured approach, would help on future analysis and also assist the researcher to understand how the core issue of the interview fits within the organisational context.

(4) In order to make best use of time it was important at the beginning of the meeting to clarify the availability, in terms of time, the respondent had for the interview (Smith and Dainty, 1991).

(5) A common attitude amongst all the respondents was to ask for confidentiality of the material they were divulging. At other times they would say that it was fine to publish the material so long as they were consulted first to check exactly what was written. This suggests the degree of sensitivity of this issue. Therefore, presenting clearly the researcher's intention regarding the data collected was a subject always discussed prior to the meeting.

3.6.1.3. Data records

The tape recorder appeared to be the ideal tool initially to store data from the interviews during the meetings. It was very important in the research to maintain the integrity of the

respondents' words, therefore the meetings were tape recorded on audio cassette. Because of the nature of this research - the role of communications within a change programme - it is important to understand that the fidelity of the wording and/or vocabulary must be kept (Belmiro et al, 1997).

Manual notes were also of great value, specially when the researcher, by making use of direct observation, could enrich the data by taking notes of things that happened in the surrounding environment that could not be recorded, either because that thing was visual (e.g. facial expression, someone's comments on the background, etc.) or because both researcher and respondent(s) were engaged in an informal conversation, for example, during a lunch or coffee break.

In order to facilitate further analysis, the tape has to be transcribed (see appendix 4), and the most efficient way found was by using a dictation transcription machine and word processing. Although at many times researchers are tempted to hire a professional to do the transcribing work, because they know how painful the long hours spent on this purely mechanical job may be, it is recognised that there are inconveniences in having a third person involved in reproducing and interpreting spoken ideas, when the person was not there to understand the context in which the conversation happened (Bryman, 1988).

In the case of the investigation on Brazilian companies, a further translation, from Portuguese to English, took place simultaneously to the transcription. Terms and expressions were kept in as many occasions as possible by doing only a straight

translation of words, aiming to reproduce as much as possible the originality of the language [e.g.; troop radio (BR) ⇔ grapevine (UK)]. In certain cases where this process appeared to be meaningless to the English speakers an acclimatisation of sentences was processed. Such acclimatisation happened only after consulting natives about what they understood by certain Portuguese expressions. Through personal contacts it was possible to explain the meaning of the expression, and then to gather the appropriate translation, which could be better presented to an English reader [e.g.; *'we want our employees to wear the company's shirt'* (BR) ⇒ *'we want our employees to carry the company's flag'* (UK)].

The data, having been transcribed, translated and stored the next step towards the organisation of the data to facilitate the analysis process was to find a convenient or readable way of coding the material (section 3.7).

3.6.2. Documentary information

The most important use of documents is to corroborate and reinforce evidence from the other sources of information (Yin, 1994). Furthermore, the main objective of this research project is to investigate the communication process in use during a re-engineering exercise, therefore to examine a company's whole array of communication tools.

On the other hand, as Patton (1980) states, documents are very helpful in verifying the correct spellings and titles or names of techniques or names of other organisations that

might have been mentioned in the interview. They can give to the interviewer ideas about important questions to pursue through more direct observations and interviewing. Finally, inferences can be made from documents.

The most common documents collected in the referred case studies are:

(1) News letter, or company's magazine [e.g. Rank Xerox, Kodak, Michell Bearings, CTBC]

(2) Briefings [e.g. Michell Bearings]

(3) Performance measures [e.g. GM of Brazil, Michell Bearings]

(4) Description of the business process re-engineered [e.g. Rank Xerox]

(5) Organisational chart [e.g. Rank Xerox, Michell Bearings]

(6) Corporative document - Roles, report progress, projects, seniors' speeches etc.- [e.g. Rank Xerox, CTBC, Xerox of Brazil]

(7) Companies' own survey [e.g. Rank Xerox, Xerox of Brazil, CTBC]

(8) Employee satisfaction survey [e.g. Xerox of Brazil, Rank Xerox]

(9) Company communication guide [e.g. Rank Xerox]

The following section examines the third most used method in this research project to gather qualitative data.

3.6.3. Direct observations

The purpose of observational data as Patton (1980) infers, is to describe the environment being studied, the activities that took place in that environment, and the people who participated in the research activities. Such observations can serve as additional sources of evidence in the case study.

Through observations the researcher could notice contradictions between what was said and reality. For example, a manager at company B described their investment on IT as an important step towards a cross-functional structure (elimination of boundaries). He stated many of the management people at that time were already confident users of that technology. However, in an informal conversation with their quality manager, he said that he personally never used facilities such as e-mail, or internet even to access Xerox home page and like him many others would not bother with that, because they did not need it. Contradiction of statements is a very clear example on how much extra information we can obtain just by observing and linking the facts.

According to Patton (1980) direct, personal contacts and observations of a programme in the field (case study) have several advantages for the researcher. Among all, he describes six of major importance:

(1) by directly observing programme operations and activities the interviewer is better able to understand the context within which the programme operates.
(2) first-hand experience with a programme allows the interviewer to be inductive in approach, reducing his need of relying on prior conceptualisations.

(3) the interviewer has the opportunity to see things that may routinely escape conscious awareness among the respondents.

(4) the extent to which the interviewer can learn about things the respondents may be unwilling to talk about in an interview.

(5) observations permit the interviewer to move beyond the selective perceptions of others. It is necessary to keep in mind that the respondents are most of the time reporting perceptions. By making their own perceptions part of the data available in the investigation, interviewers are able to present a more comprehensive view of the case being studied.

(6) getting close to a programme through firsthand experience permits the interviewer to access personal knowledge and direct experience as resources to aid in understanding and interpreting the case study being evaluated.

Having described all the methodologies used since the identification of the problem to the collection of the data, the next section covers the processes which validate the choice of the methodology as well as the analysis process.

3.7. Validation of the methodology choice

At the initial stages of the research investigation, the respondents have demonstrated serious concern about the possibility of measuring communication success and about the ability to accredit the communication strategy chosen to the success of a specific project. Isolating the two variables - communications versus productivity, for example - and translating them into numbers (quantitative measurements) seemed to be impossible, if not unrealistic. The fundamental reason for this is that communication strategy is an issue of 'volatile' behaviour. In other words, the perception of a good communication event for one group of people is not necessarily the same for another, and also communications tools reach people with different efficiency. How can one measure in a

scale of one to ten their efficiency? None of the respondents (team leaders) could answer this question; however, the common belief strongly stressed by all of them is that 'organisations' have finally recognised the importance of communicating, interacting, listening to the 'individuals', not to the function they represent - e.g. operator / manager. Therefore, the relevance of quantitative analysis was out-weighed by the richness that the qualitative approach could offer. Such initial observations, undoubtedly, assisted the researcher on the judgement of the more appropriate methodology to pursue the actual research project. The validity of the results of such a methodology was now relying on the development of criteria (section 6.1) to be followed, to guarantee the quality of the qualitative investigation.

After further examination above, considerable attention was given to the literature in order to support and validate the choice for a strictly qualitative research method. Patton (1980) suggests a questionnaire to be used to assist the investigators on deciding whether qualitative methods are an appropriate evaluation strategy. His checklist and comments about the method of evaluating the guide are presented below. The answers written in **bold** represent those which correspond to the current research features.

According to Patton;

> If the answer to any of these questions is 'yes', then the collection of some qualitative data is likely to be appropriated.

1- Does the program emphasize individualised outcomes, i.e., different participants are expected to be affected in qualitatively different ways? And is there a need or desire to describe and evaluate these individualised client outcomes?

Yes No

2- Are decision makers interested in elucidating and understanding the internal dynamics of programs - program strengths, program weaknesses, and overall program processes?

Yes No

3- Is detailed, in depth information needed about certain client cases or program sites, e.g., particularly successful cases; unusual failures; critically important cases for programmatic, financial, or political reasons?

Yes No

4- Is there interest in focusing on the diversity among, idiosyncrasies of, and unique qualities exhibited by individual clients or programs (as opposed to comparing all clients or programs on standardized, uniform measures)?

Yes No

5- Is information needed about the details of program implementation - what clients in the program experience, what services are provided to clients, how the program is organized, what staff do, and basically inform decision makers as to what is going on in the program and how it has developed?

Yes No

6- Are program staff and other decision makers interested in the collection of detailed, descriptive information about the program for the purpose of improving the program, i.e., is there interest in formative evaluation?

Yes No

7- Is there a need for information about the nuances of program quality, i.e., descriptive information about the quality of program activities and outcomes, not just levels, amounts, or quantities of program activity and outcomes?

Yes No

8- Will the administration of standardized measuring instruments (questionnaires and tests) be overly obtrusive in contrasts to the gathering of data through natural observations and open-ended interviews, i.e., will the collection of qualitative data generate less reactivity among participants than the collection of quantitative data?

Yes No

9- Is the state of measurement science such that no valid, reliable, and believable standardized instrument is available or readily capable of being developed to measure the particular program outcomes for which data are needed?

Yes No

10- Are legislators or others decision makers/funders interested in having evaluators conduct program site visits such that the evaluators become the surrogate eyes and ears for decision makers who are too busy to make such site visits themselves and who lack the observing and listening skills of trained evaluators?

Yes No

11- Are the goals of the program vague, general, and non-specific, indicating the possible advantage of a goal-free evaluation approach to gather information about what effects the program is actually having?

Yes No

12- Is there the possibility that the program may be affecting clients or participants in unanticipated ways and/or having unexpected side effects, indicating the need for a method of inquiry that can discover effects beyond those formally stated as desirable by program staff (again, an indication of the need for some form of goal-free evaluation)?

Yes No

13- Has the collection of quantitative evaluation data become so routine that no one pays much attention to the results anymore, suggesting a possible need to break the old routine and use new methods to generate new insights about the program?

Yes No

14- Is there a need and desire to personalize the evaluation process by using research methods that require personal, face-to-face contact with the program - methods that may be perceived as 'humanistic' and personal because participants are not preordinately labelled and numbered, and methods that feel natural, informal, and understandable to participants?

Yes No

15- Do decision makers and information users have philosophical or methodological biases that lead them to prefer qualitative methods, thus increasing the likelihood that they will find the results of a qualitative evaluation particularly believable, credible, understandable, and useful?

Yes No

16- Are decision makers and evaluators interested in increasing their understanding of the program by developing a grounded theory of program actions and effects that are inductively derived from a holistic picture of the program?

Yes No

The final consideration of this section is related to the validation of the research data and analysis. Such a validation process can be verified by the reader through the observations listed below. These observations represent the strategies followed in this research to validate the data analysis.

- the data analysis has been presented in such a way, e.g. by direct quotations, that the reader can verify and validate the findings of the analysis for themselves.
- the patterns and linkages of the data accompany explanations and insights that united, then generated the final research findings.

- the use of three different data-collection methods - interviewing, documentary information and direct observation - provided opportunities to cross-check the consistency of the findings generated by the data. This process was also used to check out the consistency of different data sources within the same method. Such comparisons and cross-checking have been made, for example, to affirm and/or contradict management views against their operational staff.

- the generalisation of the results which culminated in the production of the research model and recommendations is based on the views of different respondents' perceptions (data source). To answer the research question proposed, management (source 1) and operational-people (source 2) perceptions have been constantly cross-checked during the analysis, aiming to capture a balance of the views and experiences observed. In other words, in a study where the source of observations is strongly attached to human matters, e.g., either perception of the message or effectiveness of the communication channels, the truth for one group of people (organisational hierarchy) may not be the 'total' truth for another group; however, it does not mean one of them is lying. The responsibility of the researcher is then, to find and to present a balance which shows the individual groups' vision (expectancies) and the actual practices.

A description of how the information is processed is covered in the following section.

3.8. Data processing

Very often exploratory research based on interviews and observations as methods of data collection implies having amassed a volume of information, for which interpretation is not easy to carry out. Therefore, the data processing phase for an exploratory work typically involves the classification (coding) of written answers.

The coding process may either (a) assist the researcher to transform the raw data into standardised, quantitative form or, (b) organise the data in a form where its traceability would be facilitated during the analysis stage.

In this present research project, the second coding process described above was chosen. The process consisted of dividing the raw material into categories (variables of related interest) then, manually coding where and how many times that category appeared on the raw material. The code was represented by a letter followed by three distinct numbers [e.g. **A1-1,1**], each one of them having different meanings. A table with the full data coding has been attached as Appendix 5. The categories are the variables always present during the investigation of the topic 'communications and re-engineering'. Those variables are listed below according to the number of appearances within the raw data:

1°. communication [tools, forms, purpose]

2°. organisational culture

3°. training / education

4°. empowerment

5°. team working

6°. measurements of results

7°. cross-functional activities

8°. information technology

9°. organisational structure

10°. partnership

11°. delayering

The appearance of the variables can be identified within the data through the code [**A1-1,1**] as previously illustrated. The first letter represents the company investigated and it varies from **A** to **H** as shown in the table 3.3.

CASE STUDY	UK	BR
A - MICHELL BEARINGS LTD.	√	
B - RANK XEROX LTD.	√	
C - ETHICON LTD.	√	
D - C.T.B.C.: TELECOMMUNICATION LTD.		√
E - ELECTROLUX LTD.		√
F - XEROX OF BRAZIL LTD.		√
G - KODAK LTD.	√	
H - GENERAL MOTORS LTD.		√

Table 3.3: Coding Companies

The consecutive number after the letter represents the interviewee in order to preserve their anonymity; however, they are described in table 3.4 by their job position.

INTERVIEWEE'S		POSITION	
A	1- Human Resource Manager 2- Operator 3- Former Managing Director 4- Design Engineer 5- Quality Manager	G	20- Material Flow Manager 21- Corporate Projects Manager 22- Process Line Manager 23- Customer Services Manager
B	6- Personnel and Quality Manager 7- Managing Director 8- Engineer	A	24- Team Leader Human Resources 25- Team Leader Quality
C	9- Manager of Employee Development 10- Team Worker	B	26- Business Quality Manager 27- Production Manager 28- Managing Director
D	11- Superintendent Director	H	29- Quality Manager
E	12- Supply Manager 13- Production Manager 14- Production Operator 15- Administrative Staff 16- Industrial Director	F	30- Industrial Programme & Productivity Manager
F	17- Industrial Strategy Manager 18- Human Resource Manager 19- Industrial Programmes Manager		

Table 3.4: Coding respondents

The following number after the hyphen indicates the page on the referred company and respondent document. The number just after the comma refers to the question number where the variable appeared.

3.9. Qualitative analysis

The focus on qualitative data analysis - collected from in-depth interviewing - started from the evaluation of questions generated at the very beginning of the research process, that is, during the conceptual phase of the evaluation. Thoughts about what the researcher could obtain from the unstructured questionnaire were considered and analysed prior to the formulation of the questions, to avoid an excess of variables which certainly would make the final analysis of the results difficult (Bryman, 1989).

Although those considerations were made at initial stages of this work, the project ended up with a huge amount of information. Therefore the concern was to create the appropriate filter to facilitate the re-focusing process towards the core research questions. Undoubtedly, the remaining information was essential to assist the researcher to understand the environment and the internal culture of each case study.

Naturally, in order to analyse and interpret qualitative data the researcher should have some sense of purpose and direction (Patton, 1980). Concern was given at the beginning of the project about what evaluation the research was supposed to produce. A great deal of effort was spent on determining how the project should be conducted to improve chances of success, avoiding wasted time on diverse routes. The decision of conducting and organising the research data as well as establishing the limits and boundaries has demanded a strong auto-confidence and hard intellectual and personal work.

According to Patton (1990);

> "...the analysis of qualitative data is a creative process which requires a great deal of intellectual and hard work and because different people manage their creativity and intellectual production in different ways, there is no right way to go about organising, analysing, and interpreting qualitative data".

In this regard, it was decided that the initial step towards the qualitative analysis should be undertaken during the process of **organising** the raw data (coding technique). In this way, the researcher has gained a broader sense of the data, checking out the quality of the information collected. A second step involved the **interpretation** of the data, seeking to attach meaning to the analysis. Because the core of the current research

project is directly related to corporate communications, the qualitative analysis process relies strongly on the balance between description - interviewees' quotations - and analysis (chapters 4 and 5). As discussed in previous sections, the misuse of words and lack of precise definitions from the BPR literature has been one of the serious causes of misunderstanding and misinterpretation among practitioners, and for that reason the data analysis is concentrated on comparisons and discussions from direct quotations of the respondents' interviews. The straight description of the interviewees' own wording enabled the researcher to present the current research findings on the light of precise and transparent evidences - quotations. Finally, such a methodology seemed appealing because the richness of the situation (BPR environment) is retained (Patton, 1990). For the readers, therefore, there is the certainty that there are no filters caused by hidden abstractions and interpretations to the organisational phenomena.

The third step towards the analysis of data involved the **evaluation** of the information by making judgements based on the researcher's personal beliefs and theoretical evidence about the value of what has been analysed and interpreted, therefore, about the value of the contribution to the field (chapter 7).

In conclusion, the qualitative methods applied in the current research project include a great deal of description, as previously stated, of the related activities and experiences of people involved within the BPR programme. The purpose of this description is also to let the reader know what happened during the investigation process, what is the respondent's point of view of the project, and what particular activities and experiences assisted the re-engineering programme towards significant results. The analysis and

interpretation of the data as well as the investigation of the relationships and linkages among the eight case studies are covered in chapters 4 and 5.

CHAPTER 4

Investigation of re-engineering projects

4.1. Preliminary analysis

Aiming to identify Brazilian and British companies which were actively engaged in BPR projects, a closed-ended questionnaire was sent to functional managers in 25 companies in Brazil and 53 in Britain. Out of the responses, 28% and 36% respectively, preliminary analysis took place in order to find out: (a) which companies were involved in any kind of change exercise, and if so how they would classify it; (b) the methods or techniques used; and (c) what groups within the company were facing the most difficulties (acceptance or understanding) during the changes.

The results revealed that 100% of respondents have been involved in major projects of change. The data in the questionnaire shows that there is no company that has been applying a unique approach of improvement techniques, instead they have all opted for the use of a variety of techniques. The first five most used in order of appearance were: total quality management (TQM), benchmarking, business process re-engineering (BPR), computer-aided production management (CAPM) and just-in-time.

Contradictions relating to business process re-engineering emerged at this early investigation process, when in two of the case study companies managers stated they had been applying at the same time one technique, essentially functional and

hierarchical as management by objectives (MBO), and another which implies that its success is based on the redistribution of power, a flat organisation and cross-functionality (BPR). In other cases, managers would tick BPR as one technique in use, then when specifically asked if they had heard about the term business process re-engineering they marked 'no'.

Questions were sorted in such a way that the respondent could not identify the core interest of the researcher, thus avoiding any influence on the answer. The questions had, as a second objective, to identify general procedures related to corporate communication and also to verify issues concerned with human aspects that would influence change projects. The human factors covered in this questionnaire are: (a) what are the most common fears; (b) how employees (upper and lower levels) react to change projects; and finally, (c) which groups who had been facing heightened difficulties during business changes.

An important aspect that emerged from the analysis of the questionnaire seemed to indicate that certain groups are clearly seen to have much more difficulty in accepting change than others. It is interesting that internal groups from both Brazilian and British companies, regardless of their position in the management hierarchy, with the exception of the re-engineering teams themselves, are all seen to encounter relatively high levels of difficulty in coming to terms with the change programme. By contrast, external groups such as suppliers and sub-contractors are seen as having significantly less difficulty in accepting the changes although there is little doubt that these external

groups are affected by the changes taking place (Belmiro et al, 1996). Maybe the impact on external groups is simply not so obvious from within company ranks.

Figure 4.1 was generated by the analysis of question number 10 enclosed in the initial survey sent to the Brazilian and UK companies (see appendix 2). The analysis of the questionnaire was based on the responses of senior managers concerning a wide range of stakeholders of re-engineering programmes. Each character within the individual columns represents the answer of a distinct respondent. The survey included a total of 7 and 16 responses, respectively to the countries above.

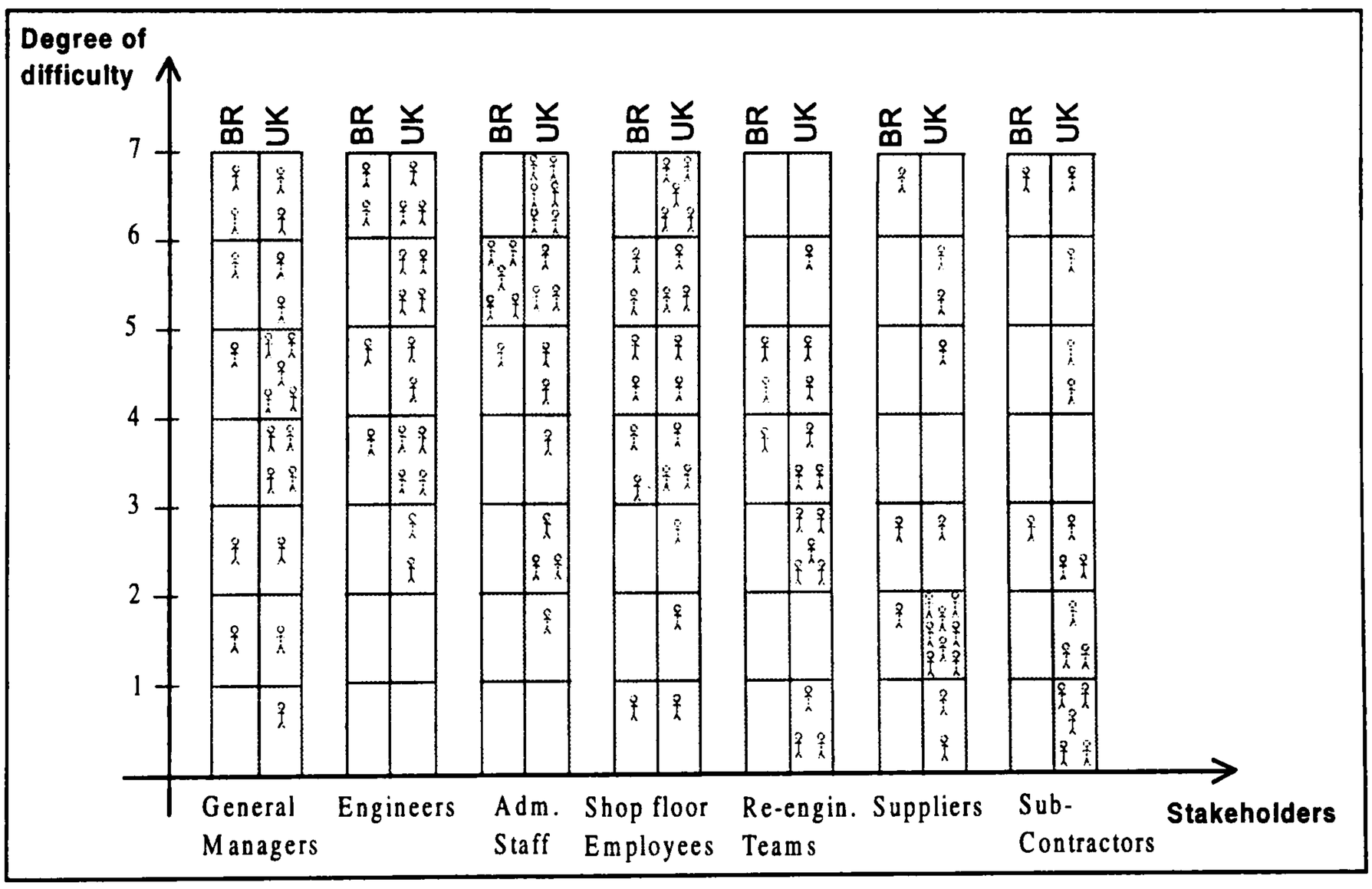

Figure 4.1: Degree of difficulty in accepting restructuring programmes experienced by a number of different functions as seen by company managers (Source: Belmiro et al, 1996)

It may be that some of the difficulty in coming to terms with restructuring programmes indicated in Figure 4.1 is due to misunderstanding or misinterpretation of the rules of

the change programme and the roles of the people in it (Fahs, 1982). According to Ringlein (1994), restructuring team leaders claim that conflicting views within the organisation create the greatest barrier to the acceptance of change.

The difference of patterns (degree of difficulty) presented in each group, both in Brazil and in UK, brought to light issues such as: what and how the communications reach the groups individually; what is the difference in terms of approach and content; in which way are those differences affecting the groups; how do the groups perceive the change programmes; are the communications tools in practice reaching all of the employees; why do the majority of the groups, excluding external stakeholders, and in lower level the re-engineering teams, present such a high level of difficulty during change programmes? Investigating these issues was thought, therefore, greatly to assist the search for evidence that could answer the research problem. For instance, the researcher would have much more opportunity to investigate in full the whole vertical communication channel as well as the horizontal one.

The companies which appeared to have the right profile - experience in BPR projects - having been selected telephone contacts were followed up to find out which companies would be willing to participate in this academic project. With the respondents' agreement, six initial case studies were finally selected. This was regarded as a satisfactory number according to the research strategy chosen - qualitative approach, based on an in-depth exploratory investigation (Bryman, 1988). Two other case studies were selected, in the later stages of this project, by using the same methodology.

From the beginning of the project the researcher considered the limitations of not being able to make any statistical analysis. Therefore, the intention was to select a sufficient number of cases for making useful comparisons and contrasts.

The following section presents the dynamics of the research and how the total research process was structured.

4.2. Research Dynamics

Prior to the visits some telephone calls to the main respondents, usually the senior managers or executives, were made to arrange the practical matters such as: convenient date and time, total time available to the interview, the kind of people the researcher wanted to talk to; and most important of all which issues and documents of interest were to be examined.

By the time of the meeting the main respondent had already provided the time table for the interviews, documents he or she thought to be important to examine and the appointment with the other interviewees. The only requirement for the meeting imposed by the researcher was that the respondents should come from different positions (hierarchical level), departments and finally, whenever as possible the interview should be carried out individually.

The participant companies to the research project having been identified, a new questionnaire was developed. However, the basis of the interviews was settled in a more

flexible, open investigation type. The questions were prepared more with the purpose of guiding the interviews in a specific direction, in order to generate data of relatively the same standard among the companies. The findings of those semi-structured interviews are carefully examined in Chapters 4 and 5. The investigative questionnaires which have guided the interview during stages 1 and 2 have been presented respectively in Appendix 3 [A and B].

In order to provide a background of the participating companies a summary of each one is presented in the following sections.

4.2.1. Company A

Michell Bearings was established in England in 1920 and about 50 years later it became a member of the Vickers engineering group. On its own the company employs approximately 200 people.

Still being a very successful company, Michell Bearings began in the last three years to be concerned about the quality of their services and their overall performance compared with those of their competitors. In 1994 Michell Bearings decided to re-engineer their whole business to overcome their deficiencies in services, especially concerning delivery on time. With the help of a consultant company, in August 1995 they began a full restructuring to precede the re-engineering programme. A few months later the company reduced 20 percent of its work force from the top to the bottom line. Many job positions were re-defined and employees at all levels re-applied for those positions

again. The shop floor was becoming totally cell manufacturing orientated. Information technology was greatly improved, with the acquisition of 150 new PC's, upgraded CAD/CAM programmes and the installation of an internal net-working and e-mail system. The company's aim was to increase the efficiency between design and production, and production and customer satisfaction. The pyramidal structure was substituted for what the company calls 'a ring structure', reducing the gaps between functions and people.

4.2.2. Company B

Rank Xerox was founded in 1956 as a joint venture with Xerox and the Rank organisation. At Rank Xerox, the research investigation was divided into two companies; one of them - Rank Xerox, Scotland - is involved with sales and services; the other one - Rank Xerox, England - concentrates its operations on manufacturing.

The company in Scotland employs around 250 people over three different sites. Since 1990 they have been concentrating much effort on changing the way they operate their processes. A massive cultural change occurred when they implemented the concept of 'self management work groups' in which engineers take most of the responsibility of satisfying customers, quality, recruiting, finance, parts re-position (services), etc. The same re-engineering concept is also being considered by the sales area.

Rank Xerox at Mitcheldean (England) employs approximately 2100 people. In terms of restructuring, their major investment was in information technology and the creation of a tighter partnership with major suppliers. A powerful computer network has been

installed on the site, enabling a larger number of people to have easier access of internal and external information. They estimate that in 1997 they will have one computer for each 4 people on the site. Many processes which involve front line people as well as suppliers and distribution have been totally re-engineered, reducing according to them, a lot of non-valued added time, and therefore costs.

4.2.3. Company C

Beginning as Merson Limited, a company established in Scotland since 1915, it became Ethicon Limited in 1950, a wholly-owned subsidiary of Johnson & Johnson. Ethicon employs around 1500 people in its four manufacturing sites. Like many other companies in the last 10 years Ethicon has been undergoing diverse changes in structure. A full restructuring happened in the manufacturing sector, where the processes moved from batch production to cellular. Cell manufacturing concepts were implemented across the whole shop floor bringing about sweeping changes from product design to packaging. A more supportive software system associated with order processing, material control and distribution was also implemented. As a result of a strategic organisational decision an entire plant was closed in 1995.

On top of the physical aspect of the restructuring projects the company also aimed to promote the cultural changes necessary to create a more involved and flexible work force. To facilitate that process, the surviving plants have been encouraging many early retirements. In addition, however, new younger people have been appointed to bring,

according to Ethicon, new blood, and new ideas into the company to support the processes which have been redesigned.

4.2.4. Company D

Telecommunications in Brazil is an area predominantly driven by state-owned companies, except for CTBC. This company belongs to a group called ABC Algar employing 5300 people, of whom 1400 work for CTBC.

The company was founded in 1954 and concentrates its business in the central area of Brazil. Since 1989 CTBC has been undergoing deep restructuring at all levels. Its structure was delayered from thirteen levels to just three. In 5 years its work force was reduced by 60 percent. Their pyramidal structure was transformed to what they call a 'network structure', where the hierarchy is just based on wages, and in 1993 a large percentage of their revenue was invested in information technology.

Much investment was also made to re-train their people in multi-skilled jobs, redesigning the way their processes work. A lot of the paternalistic structure has been transformed to a more empowered one.

CTBC aimed to achieve with these changes the world-wide quality award ISO 9000, expected in late 1995.

4.2.5. Company E

Electrolux was founded in Brazil in 1926, employing 474 people in the company visited. This specific plant has been through an extensive restructuring programme since 1993 which was initiated by a relocation of its site to a larger area, due to the convenience of an easier flow of raw materials and finished products.

A new shop floor layout was designed to fit together the serial and cellular structure. At the same time, a larger investment was made to implement a more efficient computing system into the factory to facilitate the intended cross-functional interaction among their departments.

Re-engineering thoughts came about in 1994, and at that time Electrolux had visions towards business process concepts which would include the elimination of some steps that did not add any value to the process. How to re-educate their management force towards a more flexible participant business environment was a major concern. An extensive investment, with courses and seminars about human relations and interaction aiming a change in people's attitudes and culture, was thought to be a vital start to anyone who had the ambition to re-engineer their business.

The urgency of improving productivity and efficiency with much lower costs was aggravated at the beginning of the 1990s by the government threat of a 'total' liberalisation of the Brazilian market to the external products. As well as improving productivity and reducing costs to compete internally / externally, they had to improve

quality to face the competitors equally. The international quality award (ISO 9000) was expected also in 1995.

4.2.6. Company F

Xerox was founded in Brazil in 1965. The company employs around 5000 people in its 4 manufacturing sites in the country. Since the late 1980s the company has been undergoing an extensive programme on quality control. The fundamental reason for change was the reduction of the Brazilian market restriction which brought huge competition into the country. The quality programmes resulted in the achievement of the British Standard Institute (BSI) award by 1989.

Following their work on quality philosophy, Xerox recognised its strong need to re-engineer their processes, and to rethink the way in which they were operating their business. In order to achieve more flexibility the organisational structure became flatter and the departments began to move towards a co-operative line of work, called cross-functional activities. Many of their processes have been re-shaped to match the cross-functionality requirements, and reduced in size by the elimination of non-valued-added time.

4.2.7. Company G

Kodak was founded in England in 1890 and employs in the manufacturing area in Harrow, England, approximately 2500 people. This site is responsible basically for the finishing of Ektacolor paper (product name for colour negative paper) and black and white paper, all according to customer requirements of size and texture.

In 1994, Kodak (Harrow) started a project which aimed to re-engineer their entire supply-chain for Ektacolour paper. Teams from different areas were united to make plans and to implement new business processes. The strength of their programme was based on the way they operate their business, with the involvement of different areas simultaneously, and finally in changing their business from make-to-stock to make-to-order. A new computer system was also implemented to support the plan; in this way the manufacturing personnel could get direct orders from customers, thus eliminating many non-value adding processes.

However, in 1995 Kodak stepped back on the 'making-to-order' project because their demand far exceeded what they were expecting and they did not have enough capacity to supply the orders. Therefore, the strategy for 1996 was simply to build capacity and return to the original plan in 1997.

4.2.8. Company H

General Motors of Brazil was formed in São Paulo in 1925 with an initial production of 25,000 vehicles per year. In 1995 GMB manufactured approximately 348,000 vehicles, which represent in average 22% of the national market share. The company employs 19,935 people in its two Brazilian plants.

In the past 6 years GMB experimented with many changes associated with globalisation and the increase of competition following a reduction of external market restrictions. Certainly, among all the sectors, the car industry has been more heavily affected by the entrance of imported products. Aiming for more flexibility, the company reduced its hierarchical level from 10 to 5 layers, producing a favourable environment for the implementation of a partnership management concept. Quality programmes were highly invested in, achieving ISO 9002 by the beginning of 1995,. Following this came many other cultural and organisational changes through a project that GMB called 'Continuous process improvement'.

4.2.9. Diagrammatic representation of the research environment

Figure 4.2 presented below illustrates the final environment upon which the whole project was based. The case studies selected in Brazil and in the UK (stage 1 and stage 2), and the respective respondents interviewed in each company during the whole research are represented by the individual nomenclatures by which they will be referred

to in the following description of the present work. The case studies were coded by uppercase letters, to facilitate the reading process and the traceability of the raw data. However, for cross-referencing, companies' names can be seen again in section 3.7. The respondents will be presented in the following sections by their position inside their respective companies, as shown in figure 4.2.

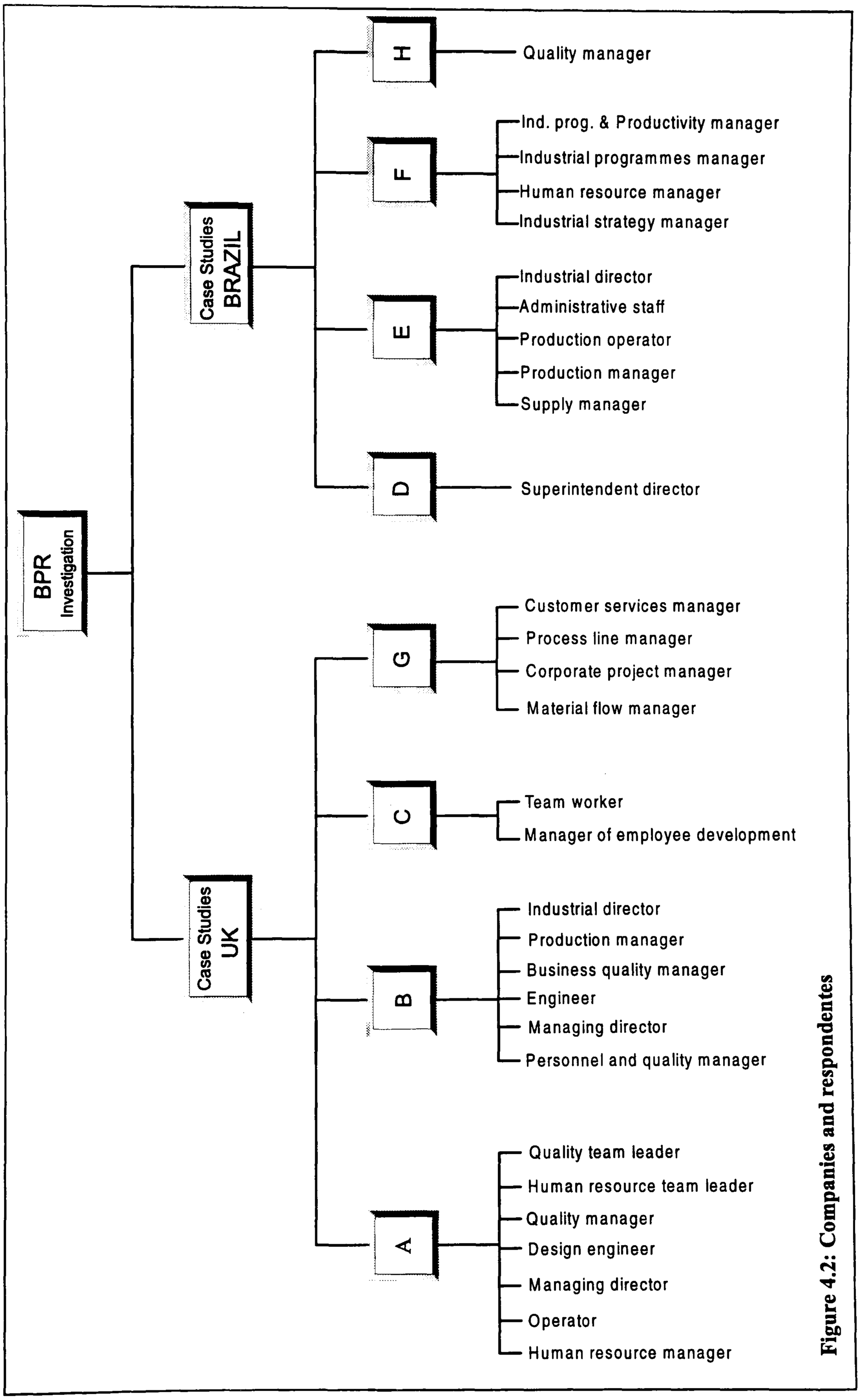

Figure 4.2: Companies and respondentes

The intention of figure 4.2 is to provide the reader with a broad picture of participants including countries, companies and personnel who contributed the raw data for the present research project.

The remaining sections within this chapter examine in detail the experiences, difficulties and the whole learning process related to the business process re-engineering experienced by the eight companies investigated. The second aim is to compare the real companies' BPR practices as well as the industrialists' views, and definitions of such projects against what is defined in the literature (Chapter 2).

4.3. Information boundaries

The data gathered in this case study strongly suggests that despite the fact that all the companies are concerned about employee communication (EC), the majority of them are still attached to old procedures of how to inform their people. The same communication approach does not apply in all the layers of the company. In other words, official information might very well be diffused in the top levels (directors and managers), but not in the lower levels (administrative staff and work force). An operator of company E stated [E14-1,3_6]:

> "Normally through the 'troop radio[1]' we know what is going on. ...if something is going wrong in the company, the employees are the last ones to know".

Relating to changing programmes, the team worker at company C said [C10-2,3]:

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[1] The 'troop radio' is a synonym in Brazil for what it is known in Britain as the 'grapevine'.

> "...I wouldn't say all the employees know about the change programmes, because we found out by accident that some information should be passed to us, but it had got lost somewhere along the line. ...so, the communication isn't there (shop floor) all the time, it could be a great deal, but the reality is each level of staff gets just one part of the whole information".

However, relating to information that goes to managers, an industrial director of company E says [E16-3,7]:

> "We have a policy of communicating everything to the people. Of course, everything the company allows us to divulge, because sometimes we have a strategic plan we can't divulge ...sometimes we don't need a meeting (talking about managers), but I do it because this is the way to bring them together, to monitor them to see if there is a divergence between some of them".

He qualified saying [E16-5,14]:

> "...some information we can't cascade down, because if we do, it can be misinterpreted, then it can drive the business in a wrong way".

In this regard, a quality manager from company A stated [A5-3,7]:

> "...and to be frank, there is a point during the process where it becomes very important that people understand what's happening. We have reached that point now. But, at the very beginning of our changes (plan and implementation) we weren't there really. It was almost a courtesy to say what we were doing, and where we were. But after the panel sections completed, I believe it is very important that people get to know, to understand the changes that are coming, and that we are serious".

The quotations above had the purpose, at this stage of the work, of demonstrating the type of environment (human aspects) that existed when the BPR concepts took place. Despite what the BPR theory implies, what the environment found in *all* eight case

studies of the project is contrary to what is suggested by Hammer and Champy's literature (1993):

> "...in a re-engineered environment, the successful accomplishment of work depends far more on the attitudes and efforts of empowered workers than on the actions of task-oriented functional managers. Therefore, executives must be leaders who can influence and re-enforce employees' values and beliefs by their words and deeds and by a clear and open communication".

As demonstrated through the quotations, the companies' communication approach is mostly vertically (downward) focused. There is not much trust between parts and a clear discontent about what 'should be done' and what is not. However, as will be demonstrated later in this study, BPR practitioners have been creating conditions, within their organisations, to favour a more horizontal communication process, promoting new forms of communication through traditional and non-traditional channels.

4.4. What industrialists expect from BPR

The organisations under investigation have been, in the past 16 years in Britain, and more recently in Brazil, involved in one or more types of the total quality programmes available. Increasing competition pressures appear in all scenarios as the most common reason for the high investments on tools such as quality and information technology to lead companies ahead of the competition. However, as the expertise of both leading tools became accessible to every company, since the beginning of the 1990s they have began to struggle again to discover new and revolutionary ways to remain competitive (Turner, 1994). Business process re-engineering appeared in this scenario.

The meetings with the BPR practitioners revealed very interesting facets of the re-engineering issue. Among all the discoveries about this subject, it is the diverse approaches and reasons why some of the organisations undertook a BPR programme as being an important fact to consider, especially for the contradictory interpretations against what the literature defends. In other words, the literature stresses that re-engineering is not just about restructuring, downsizing or acquisition of new technology, as Hammer and Champy (1993) say; however, some of the organisations have still the 'mind' focused on the macro, as if believing that eliminating costs, modernising certain areas, contracting new skills, building teams for discussing certain matters, restructuring the shop floor in cells are the answer.

There is a sense that when operating in a business process structure, companies have to be able to work cross-functionally, and working cross-functionally for some of them is still about occasionally putting a group with different skills together in a certain situation, or it is about sharing information in a mass meeting. Nevertheless, those managers more involved with the BPR concept, on the whole, recognised and expected that all changes involve a medium- and in some cases a long-term process. Transforming the way people think and work has been a learning process for all, including the re-engineering team leaders.

Sections 4.4.1 and 4.4.2 detail what British and Brazilian companies expected when they undertook the BPR projects, as well as their interpretation of such concepts.

4.4.1. Case studies at British companies

Company A:

The following comments relate to the expectancies of company A towards a BPR project. A quality manager stated [A5-8,27]:

> "...the major benefit we expect from the restructuring is the reduction of lead time, delivery on time, reduction of costs. There are several main 'indicators' to the change; one is people, the second is the system, and the last one is basically the organisation".

The former managing director, who initiated the project said [A3-9,17]:

> "The overall objective of re-engineering was quite simple. It was really to improve the competitiveness and overall performance of the business. When I talk about competitiveness I mean, cost, delivery performance, delivery lead time, technology innovation. ...as I said before, we've addressed technology, we've addressed the advance manufacture, but we haven't addressed the people. So, we haven't really done the whole thing, but we've got the recognition."

People have undoubtedly been a great issue within BPR literature as stressed by Parker (1993), and Cooper and Markus (1995) who say respectively:

> "People are the most expensive resource for most organisations and as such they offer a major opportunity within a BPR exercise" and, "...increasingly, it is becoming clear that the engine of re-engineering is not re-engineering analysts, but managers and the people who do the work".

Regarding the company's approach relating to the change programme, the human resource team leader added [A24-1,1]:

> "...we aim to restructure the whole business from top to bottom. So, we restructured the front-end, the pre-production, the estimating and sales, and we also restructured the shop floor physically, by moving machines into a cell system and the personnel have been put into the various cells".

Company B:

In comparison with the other UK companies, the manufacturing site of company B was the only one which demonstrated it was tackling the core of a re-engineering concept - the business processes (Hammer and Champy, 1993). The business quality manager demonstrated through many examples how thoroughly they have been investigating their business processes in order to simplify them, if necessary, or eliminate the ones that resulted in non-valued-added outputs. He stressed [B26-21,33]:

> "...to achieve breakthrough we are looking at re-engineering our processes, by changing the way people do things", [B26-5,6] "...all started from our business assessment, then we identified gaps where re-engineering should be, and then we started to identify elements we should improve", [B26-13,15] "...we instigated projects that would pull together the sales people, delivery people and production people creating a trans-functional team to look at the total market...".

Company C:

Regarding their change programme, a manager of employee development stated [C9-8,28]:

> "Virtually, we have changed everything within the company. On the manufacturing side, we've changed from batch production to cell manufacturing, we've changed the processes of how to sterilise products, new packaging system, some products themselves, and we've implemented just-in-time. We completely reviewed the computing process, order processing and material control. We've been looking for new ways of recruiting people, training, promoting, paying".

The observations in this company demonstrate strong elements of a simple restructuring and in some cases a modernisation of some of their core processes. The company presents a hierarchical and functional structure with no evidence of cross-functionality driven processes. As the employee development manager stated [C9-10,38]:

> "The culture of company C has been traditional, hierarchical and paternalistic. In terms of change it can be very difficult for people who have worked in one particular way, and are asked suddenly to work in another".

What the evidence demonstrates is that the company has been through profound changes, however, their work tradition has prevented them from actually re-engineering their business processes. Rather, they have only modernised them.

Company G:

Contrary to the other UK case studies, company G was concentrating only in one of their business processes - supply-chain. According to the material flow manager their structure and technology capacities were at that time compatible with their needs. The big change within the company happened when they began to make-to-order instead of making-to-stock. In order to support that project, the second biggest change was about a total revision of their computing system. Now, they are able to receive orders directly in the manufacturing. To promote those changes a team was assembled with the intention of spanning the entire supply-chain (cross-functional team). According to the material flow manager they chose the simplest product to re-engineer its supply-chain; this worked as an experiment, as a learning initiative for a more complex enterprise in the future within the corporation. In this regard, he stated [G20-4,7]:

> "What we did initially with McKinsey's consultants, was to spend about 3 months doing analysis of the supply-chain. We looked to understand what were our constraints, how much product went to high volume customers, what affects low volume customers and we looked to alternative ways in which we could approach and re-engineer our supply-chain, one way could be for example to continue making to manufacturing forecast by improving our forecasting. Essentially we came to the conclusion that we would never get a good forecast, which made us move to make-to-order".

The corporate projects manager added [G21-3,5]:

> "...our job was to get the supply-chain to reduce inventories by re-engineering it".

4.4.2. Case studies at Brazilian companies

Company D:

The kind of changes revealed by the superintendent director demonstrates that their exercise is more about a complete restructuring than a re-engineering project. Concerning the changes the director stated [D11-1,2]:

> "...we've been trying to change mainly the attitude of the people, the organisational structure, and the management system. We took out the pyramid structure and we transformed to what we call 'network structure' and we delayered from fifteen to just three hierarchical levels. Then, we brought the directors to the basis of the company".

It is noted that the director, at the time of the visit, declared he did not agree with re-engineering concepts. However, the organisation strongly believes those changes, initiated in 1991, represent the first steps towards a re-engineering process, as reported in the company's newsletter. Their BPR project, as stated in the newsletter, seeks for improvement on productivity and quality and, most importantly, they aimed to get ISO 9000.

Company E:

A complete relocation followed by the reduction of organisational hierarchy, and later the introduction of Kanban, cell manufacturing, and the new computing system were the main elements that constituted the change programme at company E. Alongside these

changes was a very great transformation involving the redefinition of management functions and culture, as stated by the supply manager [E12-8,24]:

> "...in the past the 'picture' of a manager was that of an untouchable person, but today it is not like that. We have to go to the environment with employees, and make them feel we are together, supporting them".

There is no doubt that all of these changes can be part of a re-engineering exercise; however, in company E the processes are very focused on individual tasks and functions, and the managers, at least, choose to define it as a non re-engineering exercise, contrary to what was previously declared by the industrial director when he answered the preliminary questionnaire.

Company F:

The industrial strategy manager at company F stressed that what they most expected with the re-engineering process was to reduce costs, and improve competitiveness. He stated that a series of management tools, including BPR, were applied in two main processes. According to him [F17-2,2]:

> "...with the help of some consultants we defined what we were doing, and where we wanted to go. Then, we defined one vision, afterwards the mission and outputs and to get there we've used a series of tools, which we applied in our two main processes; process of quality improvement and process of problem-solving".

Most important of all, he stated [F17-1,1]:

> "...business process re-engineering helped the company to think out of the box".

On saying that, he meant that some of their processes were re-designed, to eliminate inefficient steps and therefore time wasting, in order to become more agile and effective.

As in the other Brazilian companies many investments were made into re-educating managers towards a more participative management attitude. In order to become more flexible they have also been through a delayering process, reducing the hierarchy from seven to four levels.

Company H:

Basically, what business process re-engineering offers to company H, according to its quality manager, is the opportunity to compete in the local market. Their current business processes being re-engineered are described thus [H29-1,2]:

> "...we've been re-designing plant layouts, storage areas, services and product's quality, and suppliers quality assurance".

The first sign of success of the quality improvement programme was demonstrated with the achievement of ISO 9002 in February of 1995. The re-engineering concept, or as they internally prefer to name it the 'process of continuous improvement', has brought into the company changes in people's attitudes, because departments have been driven to work more interactively, towards business processes rather than in a purely functional way. In terms of management issues, he stressed [H29-3,15]:

> "we eliminated the 'super men', our company don't want a manager to work isolated, individually. It is this company's philosophy that ten heads can do more than one genius".

4.4.3. Conclusion

Reflection on observations through the case studies under investigation revealed that the organisations have been actually looking at ways of doing their work differently,

looking at simplifying and then improving processes. However, the examples and experiences described show that many of the companies have been trying to improve their business processes on top of the old organisational structures. There has not been much evidence of investments made in order to understand their actual processes. The data shows that, in reality, when most of the companies investigated say they were re-engineering their organisation, actually they were spending most of their initial time on restructuring the business. There is an understanding for some leaders that in order to re-engineer their processes they had to re-structure their business first - by sometimes delayering, downsizing, relocating, re-designing manufacturing, or updating systems (Hammer and Champy, 1993). However, it was evident in this research, as seen in the quotations above, that some managers believe re-engineering is nothing more than restructuring. Others, like in company E, even show their total disagreement with the concept of BPR, saying that this does not exist in their company despite their industrial director stating the opposite. The superintendent director of company D, for example, had stated in the preliminary questionnaire that his company had been through a re-engineering project, but at the time of the visit he denied even the validity of the concept.

In order to demonstrate how the process of acceptance and maturing of the BPR concept within the companies is happening, it is important to present the practitioners' thoughts about the subject for comparison and to scale them against the relevant theory or literature. Section 4.5 examines the way business process re-engineering has been defined in organisational and individual terms.

4.5. How industrialists define BPR

As demonstrated in the literature review, there have been published many BPR *versions* of what was supposed to be only one concept. The different versions have arisen because of the misuse of words and by the very wide variation in the vocabulary used in the literature which has promoted a high level of misconception, misunderstanding and misinterpretation by the practitioners, as observed during the investigation at the Brazilian and British companies. The following three sections present industrialists' definitions of BPR, according to their point of view.

4.5.1. Case studies at British companies

Company A:

Both the managing director and the lead consultant at company A shared concepts and objectives about what was important to the company and what was important to the re-engineering process. When asked about his definition of BPR, the Managing Director replied in terms of what the company expected from the programme saying [A3-9,17]:

> "...the overall objective of re-engineering was quite simple. It was really to improve the competitiveness and overall performance of the business".

However, in a later interview with the Human Resource Manager, it was clear that the concept of the programme was not a shared vision even at the upper management layer. The way in which the HR manager diverted his answer when questioned about his definition of the re-engineering shows that he had little or no understanding of the term.

The Quality Manager stated he does not agree with the re-engineering concept because for him it implies they should re-start the business again. Finally, the operator and design engineer interviewed declared in a similar way that the term was very technical and they would not know how to define it.

Company B:

The Managing Director at the services site defined re-engineering by using an example [B7-4,9]:

> "Process reengineering is fundamentally changing the way which we work. Giving a sales' person a 'lap top' where he sits in front of the customer, he has all information in the 'lap top'. So, when you as a customer say 'Yes, I want this model, in this price, in this position'. So, the customer physically signs the screen to acknowledge the order, and by doing the electronic down load of order credit clearance, the delivery would be organised automatically, etc. We want it all from the customers' site, using the 'lap top' and the telephone line. That's process reengineering, because you physically are changing the total way which that person works. Eliminating offices, effectively administration, credit control".

4.5.2. Case studies at Brazilian companies

Company E:

On the same line as the quality manager of company A, the supply manager of company E defined re-engineering as a discredited theory. In his own words [E12-16,43]:

> "I don't like the term re-engineering because it implies re-thinking the product you have in the market. It is not just about the structure of the organisation. Applying re-engineering here, suggests that someone is saying to us; 'You will get much more money here if you manufacture soaps instead of house appliances'. Then, if I change from house appliances to soap many things have to happen here in organisational terms".

According to the production manager [E13-16,43]:

> "We, at company E, have an interpretation of re-engineering. We have looked at our products, our costs, the organisational structure, but we don't classify it as re-engineering..."

These is a possible explanation for these erroneous interpretations; as suggested above by the company's managers, it may stem from 'vague' statements in the literature such as; "*...business re-engineering means starting all over, starting from scratch*", as written by Hammer and Champy (1993). According to the researcher's interpretation 'starting from scratch' does not imply that industrialists should necessarily change the nature of their products, therefore manufacturing machines and so on, as these managers suggested. Unless, naturally, the market says that there are no more consumers to buy, for example, household appliances! For the researcher, 'starting from scratch' applies to inefficient business processes. Identifying those business processes is a start. Breaking them down into steps (mapping process) in order to expose the parts (sub-processes, activities and tasks) in a clear way to define the necessary improvements, certainly represents a big step towards a possible recognition that perhaps 'starting all over' is the appropriate decision. Breaking down the business processes into parts, laying them on the table and re-designing them in a more efficient way is how the researcher interprets the expression 'starting from scratch'.

In the conclusion, the industrial director was asked to give his definition of re-engineering in which he stated [E16-1,2]:

> "Today, a lot is spoken about re-engineering. But, what is re-engineering? Well, it is about a real reduction of functions, aiming to bring people together. Then, we

can have more efficient communication, as well as more efficient productivity, and with less costs".

Company F:

On defining BPR the industrial programme manager stated that [F19-3,7]:

> "...re-engineering here is basically about processes. Our re-engineering did not have anything to do with downsizing. Well, at least till now. I say that because usually people tend to mix up those two concepts".

The industrial programme and productivity manager at company's manufacturing site defined BPR as [F30-2,1]:

> "a permanent exercise into the organisation, but we call this exercise here 'continuous change' which means for us that there is an obligation, an initiative from all managers to promote the re-organisation of functions, activities and structures".

4.5.3. Evidence of vocabulary misuse: contradiction and misinterpretation

The evidence presented in the above sections suggests that there is a profound divergence of understanding of the principles of BPR between companies' managers. This leads to misconceptions and misunderstandings within and between the companies. The research observations demonstrate that concepts and vocabulary used by employees to describe BPR are not common to each other, not even among the designated BPR team members from the same company (Belmiro et al, 1997). The experiences of companies located in countries with a completely different language and culture have been exactly the same. In other words, all the personnel interviewed demonstrated a lack

of confidence in expressing re-engineering concepts, and the variations on definitions were as many as the number of people interviewed.

Furthermore, the observations on the management definition suggest that the core principles of re-engineering have not been clearly presented. There were few managers who defined re-engineering in terms of 'business processes', which the researcher understands to be a vital concept to introduce any BPR definition. Some of the respondents were even unable to offer any definition at all, a reason why some participant case studies are absent in this section. In other cases, although the definitions could be interpreted as a non re-engineering activity, the examples found within the company did represent a BPR exercise.

4.5.4. A comparison between academics and industrialists BPR parameters

Table 4.1 illustrates some of the key parameters which demonstrate the understanding about BPR definitions of both academics and industrialists. This table was based on the BPR literature described in this research (see chapter 2) as well as on the observations gathered during this case study investigation (chapters 4 and 5).

Sectors / Parameters	**Industrialists** (from data)	**Academics** (from literature)
1	√	√
2	√	√
3	√	
4	√	√
5	√	
6	√	
7	√	
8	√	
9	√	√
10	√	

Table 4.1: Parameters which define BPR (Industrialists *versus* Academics)

The parameters which are generally present in the BPR definitions, according to industrialists and academics, are:

(1) Focus on business process;

(2) People driven effort;

(3) Structural organisation changes - e.g. reorganisation, relocation, delayering, production line → cellular structure ;

(4) Information technology as a re-engineering enabler (facilitating information flow);

(5) Implies change in products (starting from scratch);

(6) Downsizing;

(7) Cross-functional business structure;

(8) Cultural transformation - e.g. empowerment, partnership, team work, coaching;

(9) Measurement driven approach;

(10) Delayering focus.

The major aim of this table is to highlight as well as to compare the differences of understanding which exist between academics and industrialists. In this context, both sectors agree that business process (BP) is the key to the re-engineering exercise and any attempt to operate a business with a BP mentality would be pointless without the integration of people.

Information technology (IT) is seen for some of the BPR advocates within the literature as a key enabler of BPR (Davenport and Short, 1990), and for the practitioners IT represents the only way of speeding up communication, and making more effective the flow of information through networking concepts.

Measurement is another element present in some of the authors' definitions of BPR (Hammer and Champy, 1993) and it is also encountered within the examples given by the practitioners. Measurement within the BPR context represents, for both academics and industrialists, the clearest way of validating the company's vision, and ensuring that people can visualise the results, thus justifying the need of change.

However, parameters 3, 5, 6, 7, 8 and 10 have appeared with a high frequency when some of the industrialists would define re-engineering by giving examples of their actions. The fundamental reason is perhaps a misunderstanding as such issues always happen prior to or during re-engineering programmes. As current business demands more and more flexibility and efficiency, parameters such as structural changes, delayering, and downsizing, as a consequence also represent an urgent need for companies to facilitate business process re-designing. Therefore, the majority of people

within the companies investigated may perceive all the changes as part of a whole package - a re-engineering package. However, according to the researcher's view, they represent for the traditional hierarchical companies a foundation for BPR. Undoubtedly, to allow all these physical changes to happen people need to learn to work and behave in different ways, and for such changes, greater investment was observed, as demonstrated from the data, which also leads other practitioners to think that re-engineering is all about empowerment and team work (cellular system).

4.6. 'Business process' the epicentre of a BPR exercise

The discussion about the novelty of business process re-engineering has been an issue present among management practitioners and theorists since the concept initially appeared at the beginning of the 1990s. Some sceptical BPR theorists affirm that this concept does not offer any thing new, because even a concept like 'business process', present in all BPR literature, was to some extent broached from past management theories such as, for example, total quality management (Earl and Khan, 1994). Other management theories had broached the subject, but they have not done anything; rather, they have insisted on trying to improve the quality of products and management by simply implementing technology on top of obsolete structures and processes (Schmidt, 1994). The novelty of BPR, however, is fundamentally its focus in the following two activities: the first is defining how the organisation operates in terms of business processes. The second is analysing and reviewing each business process (mapping technique), which would include measuring and benchmarking process performance (Fisher, 1996). Such activities certainly would drive organisations to identify how

processes cross beyond the boundaries of a single function. On reflection, thus a second important distinction from BPR to the other management fads - its cross-functionality nature was made.

The following section has the intention of examining practitioners' definitions as well as examples of a business process aiming to demonstrate their understanding of the issue and comparing it with definitions presented in the literature (section 2.2.2).

Stage 2 of the research project having began, an open-ended questionnaire (Appendix 3C) specifically designed to explore in-depth the issue 'business process' was sent to the managers of each one of the eight case studies on investigation. The number of respondents for this specific survey was four. According to the respondents, their definitions and a list of the business process selected to be re-engineered are:

Company B:

The business quality manager defined a business process as:

> "a series of interrelated work steps organised to meet a business objective. It will impact the people who operate the process, the way they work, the information and documents they need and the technology (telephones, PCs, ...) they use".

Referring to the business processes being re-engineered the manager said:

"The Xerox Corporation is making considerable investment in 're-engineering' its operations world wide. Company B has some four years experience of business process re-engineering and our initial work focused on; (a) order management (b) field engineering - taking a customer call for a product installed but not functioning correctly and responding with a process that makes sure the customer is satisfied. However, over the last two years the business processes undergoing

fundamental change include; (a) sales (b) market management (c) invoicing of collection (d) service management (e) product development and launch."

Examples of two business processes currently re-engineered at company B, a manufacturing site, have been presented in Appendix 7.

Company G:

The material flow manager defined business process as:

"Any logical group of activities that have defined inputs and outputs and is replicated".

The company's first experience on re-engineering a business process started with the 'supply-chain'. In this regard, the manager stated:

"The company have decided for selecting a specific supply-chain 'Ektacolor paper (product name for colour negative paper)' for its characteristic of being a small and a simpler business process. Having learnt from this one, other complex business processes are the next objectives".

Company F:

The definition of business process, as given by the industrial strategy manager, on the services site, is:

"All service processes and processes that support production processes. A business process consists of a group of logically related tasks that use the resources of the organisation to provide defined results in support of organisation's objectives".

The manager stated that two business processes were selected to be re-engineered:

"(a) integrated supply chain (b) product delivery process".

Company H:

The quality manager declared:

> "business process represents all stages of the business, starting by the creation project, followed by the approval concept, prototype construction, validation, design, etc".

According to the manager, the company's business process being re-engineered is:

> "(a) design process (b) product development (c) process development (d) quality system audit (e) material handling (f) production control and scheduling".

As discussed initially, one of the aims of this chapter was to demonstrate the similarities and differences of theory (literature) and practice (companies). By and large, the proposed definitions above present a slightly different wording however, with very close meaning compared with that of the literature (see chapter 2). As indicated, most of the business processes illustrated above span across several departments such as the 'supply chain', which in company G, for example, crossed departments like marketing, sales, manufacturing, financial, systems support, distribution. At company H the functions involved in re-engineering 'product development' were: marketing, finance, design, manufacturing. By its very nature, therefore, business process is about cross-functional teams, where elements of different areas are brought together during a re-engineering process, moving the company closer to its fundamental objective - maintain on business.

The next section explains how the structure of an organisation has been re-designed to enable companies to operate their business processes effectively.

4.6.1. Migrating from a functional to a cross-functional structure

In a functional organisation, departments are focused on meeting their own goals. In other words, departments do not own all of a process, they simply perform an activity and then pass the result on to another department (Turner, 1994). Evidence in the case study has shown that the majority of wasteful activities occur at boundaries between traditional departments as demonstrated from the statement of an operator who works with machining on the shop floor at company A [A2-5,28]:

> "It might be better if while the design team are studying what they intend to design, they come down to ask us if that thought would work. Instead of which just go ahead then produce a drawing that won't work here, either because our machines are not settled to do that or because we cannot understand what they mean by their drawing".

This is only one example of a communication problem between two groups, *the designers and the doers,* where, as analysis of the process goes further, bureaucracy and obstructions appear.

As BPR's effort and emphasis is on analysing business processes and the term business processes implies a horizontal flow of work or activities (Harrington, 1990) great emphasis has been placed, as demonstrated by the evidence in the case studies, on transforming their vertical (functional) structure to a horizontal one (cross-functional). It is expected, when operating a business cross-functionally, that re-work and bureaucracy, therefore, over dead lines and costs would be eliminated. Turner (1994) reinforces it by his statement:

> "In a reversal of Adam Smith's skill specialisation principles, the re-engineering approach was built around business processes with teams of people performing cross-functionally an entire process".

Because many business processes cross functional boundaries, often companies have been restructuring their organisation's hierarchy by flattening it in order to facilitate the horizontal flow of activities as stated by the production manager from company E [E13-11,31]:

> "...with many people driving a process it's impossible to avoid conflicts; that's why we've reduced our hierarchy. We realised we don't need too many bosses. If you have a person with authority to inter-cross functions as well as people from other functions working as a team you can have a more effective process, and consequently be more productive".

Evidence from the eight case studies investigated shows that unconditionally all companies have been through a kind of restructuring, essentially by delayering their structures. Migration towards a cross-functional organisation has always been present. In the second stage of the research investigation the figure 4.3 was presented to the team leaders to verify whether they could identify their companies in one of the situations [1] or [2]. Most of them stated they were migrating to [2]; however *'human barriers'*, as they implied, were preventing the organisations from moving totally to [2]. According to the team leaders, a strong cultural transformation had to happen first. Another few, like the manager of employee development from company C, stated that still being operated by structure [1] was the reason why they have been delayering and replacing some of their people because their traditional attitude of working has been blocking changes.

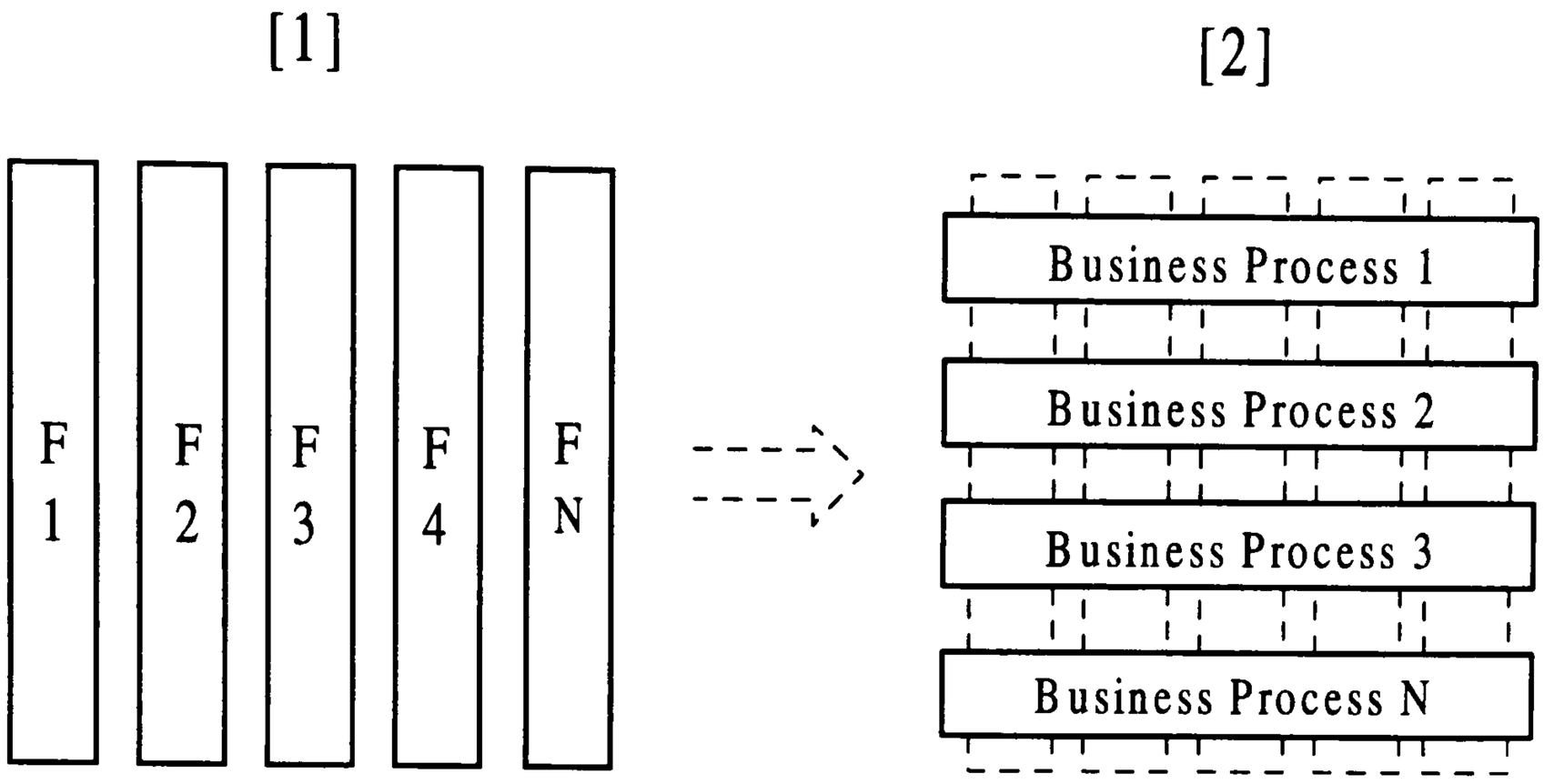


Figure 4.3: Traditional *Versus* re-engineered organisational structure

Note:

- F1... FN = Function 1 ... Function N; where F1 could be *purchasing* and FN *distribution*.
- Business Process 1 could be, for example, a *product development and introduction* which could include product design → testing → configuration → manufacturing → documentation.
- Business Process N could be *administrative support*.

Re-engineering requires looking at the fundamental processes of the business from a cross-functional perspective, according Carr, et al (1992), where the traditional (functional) company's structure is giving way to the cross-functional one.

According to some practitioners the benefits of working cross-functionally are many. The process line manager at company G states [G22-1,1]:

> "I've certainly seen a difference from [1]. Now, we have improved the communication significantly between each of the functions to get a much better

understanding of the issues through the information flow, from suppliers right to the end - customers. So, I think we are much more like [2]. We've definitely moved from [1]".

Another benefit when moving to cross-functional structure is reported by a business quality manager at company B, on the manufacturing site. By using one example he explains [B26-13,15]:

"...we at company B instigated a project that we would put together the sales people, delivery people, production people creating a trans-functional team to look at the total market, the total supply-chain. That project resulted in quite a few changes in the way we work. When we go for a session we start saying: 'this is where we are and this is the flow process'. Then, we go through brainstorming sessions with all the people. We've got different levels of people, in a cross-functional interchange. Usually we come up with a very good set of ideas. Then, we actually go in to do it".

Such proximity to the structure [2] has driven organisations to re-define job responsibilities. As people get closer they need to understand about their partners' activities. In this regard, organisations are moving towards having multi-skilled and empowered employees, as individual tasks lose their value in benefiting team work. As the industrial programme manager from company F stated [F19- 6,18]:

"...from production line to the management we've been changing job responsibilities. Now, each operator must know two, three, four or even five different stages of the process they work. Each engineer who works with me, for example, has experience in two, three or four areas in the company. In the past, because, perhaps of the market's restriction, we used to separate areas. But now, we are not doing that any more, and we've been merging areas also. Before we used to have product manager, industrial manager and quality manager, now we've merged all in one area. All are working together. There is a vision, here at company F, that by merging areas the process of eliminating boundaries is facilitated".

Reinforcing the above statement an administrative staff member of company E commented [E15- 1,2_3]:

> "The philosophy of work has changed a bit. People generally do the same thing but not any more just one activity. Our functions now are diversified, now we have to understand a bit from purchasing, receiving, materials, export, import and even from manufacturing. We've been interacting more with other company's sectors, the work became more interesting for us. It is good because it is not monotonous".

The advantages of moving to a cross-functional structure, as reported, are many. However, the disadvantages can be catastrophic if the company misinterprets the cross-functional concept like the example demonstrated in company B, on the services site, where one person, in this case a team leader engineer, was by himself responsible for many distinct functions at the same time, which means that the cross-functional concept was attributed to only one person's responsibility or expenses rather than to a team. In this case the researcher believes the multi-skilling concept went too far. A clear disagreement is reflected by the engineer of that company [B8-2,6]:

> "I don't believe I'm capable of doing somebody's job, in the same way he is not capable of doing mine. For example, in the service force, which is comprised of people that are educated to be engineers. We chose that at school. We weren't educated to be marketers, administrators, human resources people as they (managers) are imposing on us through this self management work group concept, which has been implemented into services. We could collaborate a bit in other areas, but not compulsory collaboration. They want to sound that we can run company B, but we can't".

To conclude this section, the researcher found it interesting to quote a comment paraphrased by company F's guest, not named, as stated by the human resource manager [F18-10,17]:

> "...the liver is separated from the stomach and one never says to the other when his function starts or ends and everything works well. In other words, there is no stand by, there is no 'I am busy at the moment'. The demarcation areas are not important when we know what to do, when people are working to satisfy the customer's interest not its internal and individual goals".

4.7. Barriers to change

Changes have been a common procedure within a modern industrial environment and the reasons for it are briefly commented by Hammer and Champy's (1993) statement:

> "...in today's environment nothing is constant or predictable - not market growth, customer demand, product life cycles the rate of technological change, or the nature of competition".

Regardless of the nature of products or position within the market, the companies investigated have in the past 15 years, or more radically in the past five years with the advent of BPR been, undertaking a large range of changes, starting from structural moves such as delayering, downsizing, relocating ... to technical changes by applying networking concepts, new computing systems ... to cultural changes by using concepts like empowerment, partnership, coaching, generalist professional (multi-skilled), team work ... and finally to, re-engineering the business process in a cross-functional perspective.

Such a degree of transformation in most of the cases investigated, has been undertaken all at the same time which has reflected in dissatisfaction from different levels within the organisation as well as a high degree of resistance to the changes (Belmiro et al, 1996). People are inherently defensive (Lupton, 1991) and anything that affects their traditional behaviour and challenges their achieved position will make them, at least initially, boycott the changing programmes.

The evidence gathered during the case studies investigation demonstrates that the following four features are closely interrelated, and according to the team leaders interviewed, they represent the major blockages for the proposed business processes re-engineering programme.

Culture: Past management theories and also the no competitive business environment have enabled companies to operate with a heavy and bureaucratic structure with bosses of bosses. The whole environment was strictly functional and people used to work very much on an individual basis only to fulfil tasks and to satisfy departmental goals (Turner, 1994). However, as companies become re-engineered and the business process concept takes place, more and more people have been forced to interact one with another, to understand about other people's jobs and finally, to communicate more directly. The difficulties of implementing changes are related mainly to the culture of the company, as stated by the industrial director of company E [E16-2,4]:

> "It is not easy at all to integrate people into new philosophies, especially when we have people working for a long time in the same function in a company. Other points are: it is very common even nowadays to find executives who hate the computer system. Some people don't want to evolve. A second point is, some managers are very bossy and they don't want to change themselves. I've been

telling people here: 'we have to change, we are in another time'. Companies have been reducing structures, then people are getting together. This implies we have to understand more about people to interact better with them. The past style of work has made this process difficult. Older people are not used to interacting with other people, sometimes this is just a question of personality. Here, I already substituted some people for that reason. They simply don't want to change. ... you can give courses to them, you can do whatever you want, but they won't change, because it is their nature. Then, we have to take a decision".

Education: While some of the case studies are concerned with their employees' level of education, on the other hand, others state that it is their highly specialised and educated people - mainly middle management - who have been the ones to offer most resistance to change. Although the Brazilian educational level of the labour force presents, generally, a low level, as Humphrey's (1995) studies indicates, most of the managers except in company D, declared their work force to be less responsible for barriers during change programmes. The fact is, a completed first-grade education has been the minimum requirement to contract and to keep production workers in all case studies, as well as in the majority of large organisations in Brazil (Humphrey, 1995). The situation may be different in medium and small enterprises; however, this is out of the scope of this research. This work force selection is a condition that may not always be possible in smaller organisations as they cannot pay skilled personnel accordingly, as large organisations can. The quality manager of company H confirmed [H29-6,34]:

> "...our work force does not offer great resistance to us as long we convince them about the reasons of the change, usually they are more docile to treat. All our employees have at least a first degree and to improve their technical level the company has a scheme which covers 50% of the costs for external courses. The most difficult people here to accept changes have came from the administrative people, the engineers and some middle management, those with higher intellectual level, because they think they know everything".

In contradiction, the superintendent director of company D stressed [D11-2,2]:

> "We have to emphasise a lot on education. The primordial thing is education, specially in Brazil where the educational level of the employees (work force) is low and people don't have the habit of reading. The information process is quite hard if people don't have an interest in reading things. Then comes the issue of re-educating people to empower and to stimulate them to assist the whole process. But also, even a graduation is worthless if the people don't update themselves. If they don't update themselves they will find it difficult to understand changes, then they will fear changes".

In general terms, the concern of British companies towards the issue of education is more related to traditionalism within the business environment. It is a question of re-educating people to new ways of working or perceiving their jobs.

Technology: Information technology (IT) should be used to enable new re-engineered processes, not to automate existing ones, as stated by Hammer (1990). However, some of the cases observed during the investigations show the contrary. Most of the technology has been used to automate functional activities. In other cases, as in company B, a large network had been acquired aiming to facilitate and speed up information flow; however, even some re-engineering team leaders were unaware of how to use that system as exemplified by a production manager in his statement [B27-2,2]:

> "The move you see today in IT is the move into the network. In some ways company B's new system is more user friendly, more interactive. I don't use a PC myself, that's what I hear from people".

There has been, undoubtedly, strong evidence from the data gathered during the interviews, of the companies' effort to modernise their IT to compete with quality and

efficiency as well as to interact between departments and to speed up communication. However, the data reveals that human aspects have not also been addressed in this issue. Mostly, only people directly involved with the changing team can understand and use the value of such a tool; the others are still unaware of the IT concept within a BPR initiative, and the participation of the work force is far more remote. In brief, the barriers observed were: (a) large investment to modernise existing processes and (b) large investment on material without updating the human resource.

Communications: It is never enough to just 'tell' about some new insight. Rather, you have to get employees to experience it in a way that evokes its power and possibility says Brown (1991). However, in order to empower the people to assist them to transform the theory - the concepts - into the reality - results - the cycle goes back to the issue of education. As stated by the supply manager of company E [E12-7,22]:

> "...we have to be focused to the employees' needs, in terms of education. To be productive we have to have a professional well prepared to do his activity, in such a way he doesn't need a boss. And if you have the right professional at the right place, he'll automatically contribute with ideas, and he'll interact and communicate to others when he needs it".

The most serious barrier to the manager, as well as to the work force, is what they call 'communication noise' [grapevine (UK) - troop radio (BR)]. As the managing director of company B, the services site, believes, the **speed** of official communication is the biggest barrier at his company. In his own words [B7-9,24]:

> "One criticism we've got from internal communication is that rumours spread far faster than any formal official communication. So, there is a perception that people hear things by rumour first then officially later. The only way to solve it it is by technology".

On other hand, the personnel and quality manager of the same company stated [B6-9,27]:

> "...the biggest blockage in terms of communication is **people.** Basically, people add flavour to the correct information. There are some malicious people in the company who turn A = B into X = Y. That's a communication fault which will end up with rumours and fact, and rumours travel faster than the correct communication. ...the trouble is, people like to believe that there is some truth in rumours. They like to say, they've got the message first from the grapevine, and that is what will happen, they believe".

On the contrary, an administrative employee stated [E15-4,18]:

> "Always we have failure in the communication, and this occurs from both sides - company and employees. Sometimes the company hasn't even officialised information, but the employees already know, at least part of it. What this means is the information leaked out from somewhere. This is not good because we feel deceived. If the subject is strategic they should be more secretive. But they should inform people something during this time, explaining for example: '...we've been planning this, and that, but we can't give you full details yet, we believe soon we can do it'".

Another kind of communication barrier is illustrated by the manager of employee development of company C [C9-3,9]:

> "I would say that our major blockage here is the **traditional attitude**, because we have a lot of people who have worked here a long time and they just don't want to listen about changes. The communication is one-way, they don't give feedback".

As perceived during the investigations, because management people are always concerned to show the whole, or at least the biggest part of the picture, the company never builds the kind of confidence and trust that is necessary from the employees. They

are always suspicious that something else is going on. This certainly limits the effect of communication within the work environment.

4.8. BPR environment

The required BPR changes affect issues like motivations, attitudes, skills, knowledge, and work practices and it has profound implications for the individuals (Cooper and Markus, 1995). Such changes determine the kind of environment necessary to guarantee the success of BPR practices. Evidence from the research observations demonstrates the industrialists' awareness of enhancing people involvement within the re-engineering process. Empowerment, partnership, team working, network organisation, and coaching concepts represent the minimum requirement to the development of a supportive BPR environment which, in theory believes Harrington (1991), would stimulate people to work 'with' the company and not only 'for' the company. Working cross-functionally implies delegating people with the authority to cross boundaries when necessary. A larger degree of empowerment would be vital to enable people to operate across the existing departmental lines (Bowen and Lawler III, 1995). Decisions should be made according to need, not according to the delimitation of the tasks.

Normally, when a re-engineering exercise has been planned a group of those supposedly empowered people coming from distinct functions is brought together to discuss the related processes and to plan the re-design and implementation. This process has been creating the sense of team working among the BPR practitioners, as demonstrated by the experience of some of the companies investigated. What most of the managers

interviewed believe is that the team experience promotes a kind of brainstorming which helps by generating many productive ideas, and, most important, it gives a sense of ownership to the members. Moreover, actions, as the managers say, normally tend to happen more quickly.

The partnership principle initially used mostly between companies and suppliers has now been used among companies' peers also (Dull et al, 1995). In order to facilitate the information flow among diverse areas and even among the team members, the majority of the managers stated, during the interviews, their concern for the need of eliminating the heavy hierarchic attitude, where the relationship between subordinates and superiors was distant and formal. Management are starting to feel they have to stimulate the idea that there is no boss any more within the company structure but rather there are partners (Hammer and Champy, 1993). According to the supply manager at company E, the company's managers are now responsible for coaching the employees not to supervise them [E12-8,24]:

> "...today, we have to go to the employees' environment of work and make them feel we are supporting them together. This is a motivation agent too. ...we have to participate with the employees in the day-to-day work, to show them we understand what they are doing. The participation must be in two ways. The person feels important inside the process, when he has the opportunity to talk, to discuss with who is managing the process".

In conclusion, the BPR environment, as observed within the literature as well as within the investigation's case, can be characterised by an extensive concentration on human matters, on how to integrate them through boundary-crossing relationships in order to integrate the organisation's constituent parts and thus contribute to organisational

objectives such as effectiveness, speed, and flexibility (Biemans, 1996). Such integration is characterised by some case studies as in company A, B, D, F and H as a network structure which in all cases is based on advanced information technology. The concepts presented in the above section have been, undoubtedly, within the management scene in the past few years. However, for reasons explained in previous sections re-engineering has highlighted their essential presence within the modern business.

Practitioners and BPR advocates agree about the sequence of thoughts presented above. They certainly agree about what should be the ideal BPR environment to enable success from the implementation. Observations from the case studies demonstrate that the vision is present within the organisations. However, the practices show that companies are still centred on the traditional old style of structure and management. It is evident that the existing confusion relates to beliefs and attitudes for people within different levels. On the other hand it is clear that a few team leaders or executives have already absorbed the proposed BPR practices. The kind of confusion presented is demonstrated by the corporate projects manager at company G [G21-10,11]:

> "We've been moving from the structure [1] to [2] (see figure 4.3 - section 4.6.1), I would say we are probably half way between the two. The easy thing to say is that we are going from [1] to [2] but in other words the function boxes in [2] are probably dotted lines, both of them are dotted at the moment. If you look at your structure [2] I say that obviously we have managers at the top level that are very functional (dotted box). We've now got a manager who is really responsible to the supply-chain (solid box). The trouble is, those people (individual function) still exists. Basically, we still have people managing across functions and managing down processes and that's a very difficult position to be in, and we've got lots of people that have got very different ideas about what they should or shouldn't be doing".

Information technology has been considered for many re-engineering advocates, in particular Davenport and Short (1990), as the vital enabler of the BPR. Davenport and Short advocate, as agreed by most of the practitioners interviewed, that IT can make it possible for employees over the whole business to work as a team. With the aim of examining the importance attributed to the technology within a BPR context, section 4.9 illustrates the case studies' experiences with this issue.

4.9. The role of Information Technology within BPR

In this case study, five out of eight companies had invested largely, at the time of the interviews, in computer technology aiming to facilitate links between functions, eliminating at least virtually (term used by the business quality manager of company B) the functional demarcations by integrating specialists' knowledge across organisational and geographical boundaries. In-depth interviews with senior executives indicate, according to Furey's et al (1993) studies, that over 50 percent of all re-engineering efforts are initiated because of a perceived information technology opportunity. However, as the results of their studies demonstrate, only 15 percent of the executives said that IT proved to be a critical re-engineering success factor (source: Oxford Associate's Survey of Fortune 500 companies). A possible explanation for this low rate is stated by Hammer and Champy (1993) with an argument that IT cannot promote any advantage if implemented on top of deficient structures and, more seriously, if the people do not receive the appropriate training and support to manipulate such tools. Regardless of the poor results demonstrated by the use of IT in the above survey, Parker (1993) stresses that:

> "...as BPR builds on existing change processing mechanisms and goes a stage further for complete radical overhaul of an organisation where administration is eliminated, organisations are flattened, processes are streamlined getting simpler, cross-functional and improved; staff are empowered, managers coach and own business processes; **technology** is the enabling tool by which re-engineering occurs".

He adds:

> "Technology has moved on and information technology now supports information being available to a range of staff, clients and customers without the need of intermediaries".

That is the reason why, for instance, five out of eight case studies have largely invested on mainly networking technology.

Sections 4.9.1 and 4.9.2 aim to illustrate distinctly the British and the Brazilian companies' vision and practices towards a broader access of the networking facilities or IT within the whole organisation to promote a larger integration across functions as well as across business.

4.9.1. British case studies

Company A:

Relating to the reasons of implementing IT within company A, the human resources team leader stated [A24-12,19]:

> "Although it was never intended to be part of the Magpie (re-engineering name for company's A programme) but, in fact, information technology has played a huge part and will continue through the future. We put 150 terminal computers in.

We've got a net-working system now. We've got facilities for everybody within the business to access. We gave courses on specific jobs like; Microsoft word, excel and then we did a session on the net-work (this is what the net-work would do, how to send a fax, etc.) and that was available to everybody. We also bought a new CAD system since last year. So we re-trained all of our people. And the eventual objective is to go from the CAD system to CNC program".

Additional information about the vision and present results of the investment of company A in IT has been attached in Appendix 6.

Company B:

The business quality manager, the manufacturing site, of company B stated [B26-15,21]:

"We are looking at Internet as one element that the management novelty requires from us. That is we have to have a global system of sharing information. We've got something around 200 PCs on site, and we currently are buying another 200. We are going to have 4 people to each PC on site eventually. [B26-15,22] ...when we went to PCs, we asked ourselves: 'how can we get a common file where every single person can actually have input to, and have access to, and take information from'. If you look at how re-engineering is changing the business process this is a good example. [B26-17,27] ... Now, we have also satellite television link. We actually have a small studio where we can set links with all our manufacturing sites and with all of our operators world-wide. We can actually talk face-to-face with anybody within the corporation".

Company G:

The material flow manager stated [G20-12,16]:

"In terms of IT we believe that we were very successful in building the systems change, we've got computing systems that enable us to take orders in, directly from the manufacturer and to make plans on a daily basis".

4.9.2. Brazilian case studies

Company E:

According to the industrial director of company E [E16-7,16]:

> "...to facilitate our internal communication we've been investing heavily in computing technology because we believe this is how we can get more efficiency to communicate and to aggregate departments together".

Company F:

The industrial programme and productivity manager from company F stated that IT has been very important to their re-engineering requirements. In his own words [F30-2,24]:

> "We have eliminated a lot of non-value activities and time waste by implementing IT. In our case we use information technology to improve our business results; if it does not contribute positively, we don't use it. We've been in the past two years investing heavily on internal networking, on Internet, e-mail system and also in a video conferencing system".

Company H:

Considering the effect of IT within the BPR concept the quality manager of company H stated [H29-4,26]:

> "The re-engineering concept in our company was responsible for fundamental changes in the philosophy of use of the information technology. It has been considered here an important element to enable our continuous changing programme. The systems implemented related to information were; e-mail, video conferencing and electronic data interchange".

It was perceived during the investigations that purchasing IT to update current manufacturing or administrative tools is a default. In other words, managers do not

mention it when talking about their IT investment during BPR programmes. Basically, what the respondents demonstrated is a strong concern for implementing IT in terms of computing networks which they believe is the only way to access information at a speed demanded by businesses, as well as facilitating the integration of people (specialists) cross-functionally, or even over organisational borders.

4.10. Discussion

Having in mind that business process re-engineering is a young management concept with still many unclear points to define, this chapter a purely qualitative investigation - based on experiences and practices, remarks and illustrations from literature and practitioners aimed: (a) to contribute with clarifications towards definitions of concepts of this relatively 'new' science and (b) to establish a consistent background of the BPR field before introducing studies (chapter 5) which have led the researcher to examine and explore possible answers to the proposed research focus (see section 3.4) of this current project. Mostly, what publications have illustrated are definitions and arguments about what industrialists were supposed to do. There are few reports which demonstrate what companies 'in real' have been doing, and their results. The current publications are often limited to present only statistics data about the range of BPR failure or success. Overall, what the researcher believes to be of extreme importance is a demonstration of the practical issues: the "how's", "why's" and what in reality practitioners are doing or have been implementing about BPR. This current research, however, intended to examine and explore what is happening in the 'field'. The use of quotations represents a vital part of the methodology of the research, because of the fundamental nature of the

current project which is basically about communications matters within a BPR environment (see the research focus presented in section 3.4). Therefore, the researcher believes it to be of paramount importance to maintain the integrity of the interviewees' words aiming: (a) to identify the elements of contradiction among companies and practitioners; (b) to establish where the fault has possibly been in the way organisations deal with corporate communication; (c) to identify basic differences, if these exist, between British and Brazilian communications procedures; and finally, (d) to produce as a final contribution to this project guidelines for the formation of a communication plan to drive the re-engineering process to maximum beneficial effect.

The intention within the next chapter, therefore, is to cover details of the relevant communication procedures, tools and attitudes undertaken by the companies investigated during their BPR activities. It is expected through this extensive investigation to build a guide with the best practices and procedures in use, as well as to produce recommendations (chapter 8) which identify those primary mistakes the companies studied believe should be avoided.

4.11. Summary

This section aims to highlight the major themes emergent in chapter 4 according to their importance within the context of the chapter.

(1) General divergence related to the understanding of the definition of the business process re-engineering concept. Misinterpretation leads practitioners to dissatisfaction and discredit of the concept.

(2) Although there is an awareness of the importance of understanding business process flow, there is no clear data from the respondents about the extension of investment given to analysing the business process.

(3) Re-engineering leads companies to a broader organisational change, which has involved simultaneously cultural and structural aspects. The difficulty faced by the majority of the people involved with the re-engineering project was in distinguishing it from a normal restructuring case.

(4) Cultural aspects blocking key structural changes such as cross-functional and network organisation, as well as blocking attitudes and behaviour changes such as empowerment, team working, partnership, etc were identified.

(5) Much higher recognition about the human aspects inherent to the change issues was observed.

(6) Information technology is regarded by the most of the respondents (team leaders) as a vital tool to integrate people and processes by aggregating physically the people located in different sites / departments. Observations show high

investments on computing technology; however the need to upgrade the skills of the personnel is still receiving low attention.

CHAPTER 5

Communicating Changes: An analysis process

5.1. Introduction

This chapter covers the analysis of the communication roles within a business process re-engineering exercise. It is based on face-to-face interviews and has the intention of exploring in-depth best practices related to business communications, and their degree of contribution towards the success of a BPR programme.

It has been alleged that Business Process Re-engineering has transformed the way managers approach organisations, and the way they do business (Fisher, 1996). These changes have required clear and direct top management communication to all employees to explain the 'new' organisation's alignment to the business process concept. Change means the intrusion of the new, the unfamiliar or the unknown into the ordered working world; as such, it can produce the symptoms of fear, anxiety or insecurity (Harrington, 1991). Whether or not changes are perceived and accepted as a progress or rejected as a loss of a way of life will depend as much on the integrity and trust which has been built up in the relationships within the organisation, and the presence of good communications, as on the intrinsic merits of the change (Adair, 1973).

People in all areas of the organisation, as implied by all re-engineering leaders interviewed, need to understand their roles in refining the process, and understand that error-free performance can be accomplished only by focusing everyone's efforts on process improvement. One of the best ways to accomplish this is to issue a BPR message clearly, stating management's commitment to the programme and outlining the role every employee has to play in this important undertaking (Harrington, 1991). The human resource manager of company F says that there is no 'one' most effective approach to communications; he emphasises that organisations should use a number of different approaches to make sure that everyone 'gets the word'.

As demonstrated in all issues discussed in chapter 4, a strong concern is attributed directly and indirectly to communication factors. At the very beginning, difficulties in planning and implementing a BPR programme appear, resulting from evident misunderstanding and misinterpretation of the concept. Later during the implementation process evidence of no shared value arises either because the information reached different levels with different 'flavours' or because it did not reach at all. It is clearly demonstrated by the 'direct quotations' that one team leader involved in a change exercise would classify the changes as a re-engineering process which, others would have a different concept and way of describing it and finally others (especially at work force level) would claim to have never heard about the concept at all, as they claim they are only doing certain things in different ways. The traditional ways of communicating changes have proved to be ineffective (superficial) and not flexible to reach fundamental issues such as lack of homogeneous involvement, lack of shared vision and common beliefs.

As the re-engineering concept evolves within the organisational environment, the current structure has to be adapted to support fundamental aspects of the concept. To re-engineer a business process, flexibility is a default apparatus that has to be in place. That is why companies normally start re-engineering by 'restructuring', for example by delayering. The more horizontal the structure, the more people need to interact with one another. Another fundamental aspect of re-engineering is the cross-functionality, and allowing people to operate beyond the boundaries empowerment is needed to ensure authority to cross demarcation lines. Partnership appears as a vital enabler of a cross-functional concept, and team work represents an important propulsion to facilitate the establishment of a singular organisational vision. All are huge changes that are going on at the same time in the majority of the case studies investigated, and the vital link between one concept to the other, between one process to the other, as has been suggested by the managers, is the corporate communication. Overall, communication has been recognised from the eight organisations investigated as the single most important thing to drive business to an effective and continuous growth. In this regard, the following sections describe the communication tools and practices which have been considered by the industrial practitioners investigated.

5.2. Methodology in practice

The main data collection, as described in Chapter 3, consisted of two different stages. The first one covered the BPR experiences and practices of three British and three Brazilian companies (see section 3.3.5). As well as learning about the BPR experiences, concentration was also dedicated to the organisational communication procedures in use

during the re-engineering process. The essential requisite imposed by the research methodology developed was that the respondents involved should come from different organisational level (hierarchy). The intention of the interviews was to assess how different levels of people perceived their communication process (human approach investigation) within this changing environment. The interviews were held on a personal basis, although later contacts were occasionally done by telephone, fax or e-mail to supply gaps in the information. Section 5.3 describes in details the results of the research, at stage 1, of this project.

Stage 2 aimed to explore communications tools used during the re-engineering programmes, especially how the concept of business process has been conveyed to the people within the company. Having gathered the sense of how people within the organisation see or perceive their communications and what they think should be done in order to achieve success to the re-engineering goals (stage 1), care was taken at stage 2 to ensure all the case studies investigated could provide specific data of how they have been conveying information related to re-engineering procedures. The sequence of investigation from stages 1 and 2 formed a useful progression, as the data from the latter case was an important contribution to answer the issues raised in the first case. In summary, the research considerations of stage 2 were focused more on the technicality of communication rather than on a human perception approach.

The data analysis related to tools and procedures used, and the industrialists' vision of how certain tools should be applied to drive BPR practices to maximum benefits, are

examined in section 5.4. The next section examines the human-centred approach emphasised by the re-engineering programmes.

5.3. Human aspects of corporate communication: How does BPR deal with this issue

As discussed previously in this work, there are many BPR advocates who state the importance of communication and the new role of people within the re-engineering proposals; however, as Willmott declares with some concern, (Peppard, 1995) there has been a continuing lack of detailed consideration given by the BPR literature to human aspects which involve communication. However, the examples demonstrated by the practitioners investigated show their strong concern and vision towards the importance of people within the modern business context. Greehan (1994) states that people - employees - are the company's number-one asset. He explains:

> "...without an increasing talent pool of qualified people, a company cannot successfully expand internationally or adapt itself in response to the dynamics of the world-wide marketplace".

Parker (1993) stated that:

> "People are the most expensive resource for most organisations and as such they offer a major opportunity within a BPR exercise".

Along with other key BPR authors, Hammer and Champy (1993) described people as one of the four points of the business system diamond. To be precise, they say:

> "Re-engineering a company's business processes ultimately changes practically everything about the company, because all these aspects - people, jobs, managers,

and values - are linked together. We call them the four points of the business system diamond".

Sections 5.3.1 and 5.3.2 demonstrate the industrialists' awareness towards the potential of the company's human assets as well as showing the other side of the coin - the responsiveness of the employees towards the organisational prospects of a more balanced internal stakeholders' participation.

5.3.1. British case studies

Company A:

By defining business re-engineering the managing director demonstrates how focused his changes were towards human aspects. In his own words he stated [A3-2,1]:

"...business re-engineering is best defined as people change, attitude change, and cultural change. But really none of those changes will work if we don't get people to become part of the whole and the only way to get this is by empowering people by, first of all, communicating".

With reference to the communication process used since initial re-engineering activities, the human resource manager declared that differences or improvements were still very few; however, the team leaders recognised the importance of it to the success of their plan. At the primary stages of their re-engineering programme the company contracted consultants for initial support and at that period, for the first time, questionnaires were distributed to the employees to gauge their opinion about changes and to measure their activities. Another way of introducing people to the changes was through mass meetings. The human resource manager stressed [A1-7,24]:

> "...after gathering enough information the consultants built a diagram with the organisational processes, which they call 'Brown Page'. Then, everybody who wished could walk around to see it. That's obviously the best communication we've had".

However, after this initial attempt to integrate people into the changing process, the system went back to the traditional way. Evidence from the research data demonstrates that most of the management people were very much engaged in their daily affairs of running the business, leaving the re-engineering team leaders with the responsibility of dealing with employee communication. However, they also thought the pressures for solving urgent practical problems forced them to leave employee communication aside, since the consultants left the site six months after the initial changes. As the quality manager stated [A5-3,8]:

> "...we had recently a large redundancy programme here and because of this we had suspended some communication sessions like group meetings, mass meetings. The past few months it was almost a courtesy to tell people what we were doing, and where we were. It was unrealistic to call such communication sessions, when people would be only worried about their job".

Overall, managers emphasised that communication has been much more open. They have gathered substantially more feedback by using techniques such as 'management by wandering around'. At the initial stages of re-engineering they had plans to transform their serial production line into a cell system, which they believed would also contribute to eliminate certain demarcation lines and stimulate more participation and upward communication. Finally, the company's concern was about finding ways to speed up information across functions.

Company B:

Evidence found during the investigation demonstrates that the significant reduction of hierarchy has enabled management to get closer to people, and consequently their communication flow became agile compared with how it used to be. As people have been slightly more empowered to do different things compared with the experience of the past few years, as the research observations show, the demand for constant and instant information has been greater, as declared by the managing director of company B [B7-6,15]:

> "...Arguably, communicating with your employees is more important than to your customers, because if you don't talk to your employees, how can they go and talk to your customers? So, you've got to make sure that what you are 'selling' to them, what you want them to do, and why they should do it is because they must believe that is a benefit to them as well. I would say that we are not aware of the full potential of internal communication. With a flat organisation we recognise more than ever before we need to do different things, we have to be faster to communicate and to reach people's expectancy. We need to approach people differently than what we've done before. For example, last week we had a board meeting, and we spent two hours talking about internal communication. How do we improve internal communication? How do we improve external communication? How do we use advertising, press relations? How do we use our employees to help achieve the same objectives? The bigger your business the more difficult it is to do this. But this is a challenge, this is the way to succeed in modern business".

In an effort to get more people involved in the business affairs company B created a model to integrate more of their work force, beginning with the engineers. This model, part of the re-engineering programme, is called 'self-management work group' and had the purpose of delegating to a larger number of staff the responsibility of administering their core process which is about satisfying the customers, i.e. services. As the company was taking out layers of management, more business was handed over to people who had never run a business before. The team leaders expected this empowerment would

encourage people to participate more, improve productivity and also reduce costs of operation.

However, as the statement of an engineer of the same company shows, there is some discrepancy between management speech and actions at the work force level. The engineer says [B8-6,21]:

> "...we have a self-management team structure now, but that team shouldn't be to manage the company. We shouldn't be involved in company administration; some problems are their problems. We have middle managers, if you like that, who are now pushing all sort of responsibilities to us, and we are not trained in those particular moulds to handle those problems and also we don't have time for that. If they (managers) could communicate properly certainly it would influence us. Actually, we have a feedback structure to communicate, but I think it might be fair to say that by and large the structure doesn't really work... Well it works to a very minor extent, I think. Personally, I've written and sent letters six months ago to certain members of management on behalf of my work group, and still I haven't receive any answer. The structure is there to handle what people might do, but generally it goes into a big bottle and you never hear any more about it. We think that when we have a problem we need to be able to talk to somebody quickly. I'm not talking necessarily about work problems, but personal problems, any problems you have to be able talk through, and clear very quickly".

The problem is that although even the work force in this case understand that a concept such as empowerment may be good and the company's attempt to encourage people to work in teams as the company's partners advocate is evident, the communication approach has failed to train and to induce the employees to buy the new process, as acknowledged by the personnel and quality manager [B6-4,11]:

> "...when we go to people who will work in the self-management work group, they feel they were not consulted in the process, and they were actually being forced into the concept. We've recognised the launch was extremely bad in the UK. If

you look at communication, we went wrong. We took our senior management and we gave them a week to explain the self-management work group, how it could affect our business, etc. Then, we took our middle managers in a 2-day workshop with the supervisors to say 'This is what the self-management work group is, and then we cascade it down to the people who have to work within the self-management work group. We gave them 2 hours in our meeting. Talking about how to communicate wrongly; we did that shockingly. About a year later we decided that, 'this is not working, the communication is not getting passed'. However, we've been learning dramatically and communication has greatly improved with much more face-to-face and upward sort of structure. [B6-5,13]; ... if you expect the self-management work group to function, we need to give them information, we need to communicate. So, it is a consequence of being aware that we did it wrong, being aware that people need the information".

As a result of this internal examination and the recognition that in terms of communication they were not passing on the message, the managers declared that since 1992 they have been trying various forms of communication to reach different groups with diverse expectancies at the same time. Overall, communications have been more flexible and directive with channels for upward communications open. However, as some managers say, the upward participation has been very limited. They say this is a slow cultural change because many people still think certain things are not their problem.

Company C:

Overall, the management attitudes presented at company C still hold strongly on to a traditional, functional structure. Although the manager of employee development says that internal communications have been more human-centred, in other words, more concerned with face to face contact and feedback, most of their communication is still

on a need-to-know basis. The manager, however, describes their communication process thus [C9-7,21]:

> "...we've started more dramatic changes four years ago and our philosophy is; 'where employees are involved in changes, when they're in change groups, then there is no problem at all, the employees will have the input from day one. But there are some changes that are planned and always will be planned only at management level. Maybe a draft plan will then be discussed with the employees, so you get a bit of both. At the initial time of the changes there was more information given from the management to the work force, downward communication. Now, as the changes progress you have moved receptiveness from the work force, as a company we have learned to be better listeners. But when the change started probably more information went from management to the work force only".

However, getting people to work together in a team was a project for company C in which it expected primarily to improve productivity and also to change people's attitudes towards a more open working environment, as they thought this plan would improve the communication among the employees, i.e. the team workers.

The manager of employee development had implied that transforming their manufacturing system from serial to cellular (team work) has dramatically increased the opportunities for upward communication and feedback; however, people at the management level still represent an enormous blockage because they find it very difficult to interact with other people, and also only a minority of employees would participate more actively unless, as the manager says [C10-8,26]:

> "...if the subject is close to their heart, for example, wages, then the majority will participate".

The reality seen at company C, as in most of the companies investigated, is that the human-centred communications approach is a current issue and seems to be slowly increasing in its importance. However, changing people's attitudes, to prove that communicating is not a threat to their power but a step forward to get quicker and more efficient solutions, has been by itself a big constraint in the re-engineering progress. In reality, to speed up such cultural change, examples in the data have demonstrated that the majority of the organisations investigated have been quietly 'filtering' and replacing as necessary their employees at all levels, as a way to overcome the difficulties discussed and to facilitate cultural changes, therefore to promote more direct corporate communication forms (more details section 5.4).

According to the team worker's point of view internal communications have changed a great deal in the past few years, as the operator implies [C10-3,14]:

> "...if you go back 10 years ago, you've got very little communication from management. ...everything was a bit of a secret, but now everybody is more open, and they would like to talk and discuss things. The only thing they are not open with is (to discuss) changing procedures. [C10-6,36] ...very often we hear things from the grapevine, but we don't want that kind of feedback".

This declaration shows that at the work force level procedures have only slightly changed towards a more flexible and open business. Such observations led to the conclusion that, as with information technology and quality programmes, the changes required by the re-engineering concepts have not and will not be absorbed instantly. However, research evidence shows progressive steps towards it.

5.3.2. Brazilian case studies

Company D:

The superintendent director reported that the reason companies have been changing is that the world has been changing too, and with it the competition. Quality control or information technology does not differentiate between companies any more but people do. According to his statements [D11-9,36]:

> "...we've been empowering people because we've perceived we can do better. The world has been changing and companies have discovered that there are 'people'. We cannot satisfy the external customer if the internal one is unhappy. In my opinion, the human aspects emphasised in our changes did not reach the ideal landing, but this is the way. [D11-4,12]; ...at the beginning of our fundamental changes we did a lot of meetings. We prefer direct talking, where people make the questions simultaneously. We use videos, we do seminars. We have built a strong communication area in the company that tries to deliver to the people all the information that is going on here".

However, he emphasised that no matter how good the internal communication structure is, projects will not succeed if the culture is very traditional, with not many people willing to change or listen to communication about changes, or if the educational level of the employees is low, as it would be difficult to understand the change by itself, and the need for change. He says [D11-4,13]:

> "...some people read our bulletins, others no. Improvement also depends on the culture and education of the people, if they are interested to make it work or not, because communication has two sides - communicator and receptor. Now, we've been investing heavily on training and courses for our directors and co-ordinators - managers - and we expect them later to coach and support our associates - general employees. [D11- 2,3]; ...but as our organisation became very flat and because of our policy of open doors and because people now are working more in teams, or niches, the flow of communication has been faster, everyone feels involved in the

process. There are more opportunities for natural and spontaneous feedback, we feel".

Company E:

As with the majority of the case studies investigated and with a bit more emphasis in company E, the human aspects during their changing exercises were pointed out by all the respondents as being an important contribution to the success of any communication objectives. The interviewees also declared that the company had been investing a lot of money to assist the achievement of cultural changes in the management style employed. Many of the in-house seminars in which they participated in were specifically to talk about people, relationships, and behaviour. This changing emphasis in seminars from the technical focus to one of human interaction is due to the fact that executives and managers in this company recognised the importance of people in this complex restructuring plan. They consider that the major challenge for them nowadays is to master the technique of empowering their people (Belmiro et al, 1996). Since their major changes started, which happened in 1992, the production manager affirms that their internal communication has been much more direct [E13-5,18]:

> "...the communication process between management and the people in the production line has been through more direct contacts, the less the bureaucracy, the better is the level of information. Only three or four years ago we've started to change our philosophy, we are trying to break down the hierarchy and people are free to come here whenever they want. Also we are trying to eliminate unnecessary job positions within the company such as supervisor. Now, employees have been empowered to decide for quality and speed of production. With fewer people, the face-to-face contact is easier".

The traditional and autocratic management behaviour and attitude were demonstrated by the managers interviewed to be commonly evolving to a more flexible and open style of leadership, where greater employees' interaction and involvement has been requested more by them. With reference to that involvement, a production operator enthusiastically stated [E14-3,10]:

> "Well, the company never allowed an employee committee before, but now we have it. Through this committee, if we have any problem we can make an appointment with the managers to discuss it. He said to us; 'if you need any clarifying, you just need to go to our offices'. They started doing that two years ago; before nothing like that existed".

Although the production operator had declared the company has been more open, he says that a lot of the communication is downward and most of the company's information known by the work force is still through the 'troop radio' (grapevine). As he demonstrates in his statement below, the business environment has changed sensitively in the past few years in terms of human relations; however, his comments strongly suggest that the company still does not operate the open interaction described positively by the management. In his own words [E14-2,4]:

> "...normally it is through the troop radio that we know what is going on. Only once we had a meeting in each sector, where the superiors passed the company's problem to the employees. That information was very good for us. I even said to them that once a month they should keep holding a meeting like that to explain the company's situation to the people, because when we are working we don't see those problems. They should show us that. Then, we could understand the situation and even help them. Then, we would try not to pressure the company in the bad times. The problems happen because we also are under pressure. One person comes here and says one thing (Union), another tells a different story, it is confusing. It should be better for us if they explain the problems when they happen".

Company F:

The human resource manager at company F believes that a very important communication strategy to ensure the success of the message is by checking out the feedback, in other words, to check people's understanding, at least from a sample of them, if talking to all is impracticable. He said [F18-5,7]:

> "...I learnt when I do the communication, I'm responsible for the message I spread. I can't leave the responsibility of understanding in the receptor's hand. Now, I ask them, 'How do you perceive that?, What do you think should be done?' I can measure people's understanding through a chat like that. Another way of measuring the feedback is through our annual employee and management assessment, where we ask everybody about their work, their satisfaction, the performance of their superiors".

The industrial strategy manager stressed that the way he perceives his work and how some other managers do is different because the emergent markets, the globalisation principles and society itself have been changing everything in terms of business roles, and finally people's attitudes and behaviours. According to his statement [F17-7,14]:

> "...I think, we must have a very open and transparent communication process, otherwise it will bring fear. Nowadays, people have more knowledge about things because television, globalisation, etc., then it's much more difficult to operate. We are facing a technology change so strong and constant that things are becoming obsolete quicker, and people know that. People must be informed, and a continuous process of education must be present. Here there is a saying, 'The success from yesterday can be the failure for tomorrow'. Then, we have to leave people in constant evolution, learning and aware that the risks are rewarding, not a threat. The most interesting thing at the moment with our changes is this contrast".

The importance that has been given to human aspects within the changing or re-engineering process in the past four years is stressed by the industrial programme manager [F19-4,9]:

"...we use direct communication everywhere nowadays. In the past, direct communication was verbal also, but now people who do the work have been more listened to than ever before. The communication has been more in two-way. We understand now that the one who does the job knows better than the one who ordered it to be done. We also have implemented within the company communication systems like: board news, more frequent meetings, spreading the company's vision and objective, assessments, electronic channels. I should say that in the past four or five years the communication employee-company improved a lot. What you hear now from the troop radio is not rumours but the real information".

5.3.3. Summary

Investigation has shown that slowly but increasingly managers have become very aware of the importance of interacting with employees. This awareness or vision has been demonstrated throughout the research by the way; for example, most of the managers have been directing their employees. In other words, when they need to refer to the employees, they do so now saying, 'our people'. It certainly reflects their attempt to build a partnership, a team work culture as well as eliminating the hierarchic distance enhanced in traditional-driven businesses.

As demonstrated in the previous two sections, many other attempts have been made to change the traditional communication procedures to a more informal, direct and upward structure, giving to different organisational levels the opportunity to exchange information, enhancing active feedback. However, as the results from this investigation show, it does not mean companies have got everything working in this flexible environment. There has been a kind of hidden resistance from most of the management

to admit they are not the bosses but company partners. On the other hand, employees have shown, in both British and Brazilian companies, that although they wish more participation and empowerment, their involvement is still restricted by existing functional delimitation or by Union restrictions which dictates that no employee should do more than what they are legally paid for. Obviously, until a new job definition is specified this will represent a general obstruction for people's involvement across the businesses.

In conclusion, the evidence demonstrated by the Brazilian and British respondents reflects the directions in which the business environment is going to be conducted in the future. Indirect, formal and strictly downward communications have been substantially driven to direct, informal, bi-directional forms. Managers justify this change resulting from some natural needs, as companies are reducing their structures, and people from different departments are working more closely. As a consequence, some managers realised that there is no other way to progress changes with the speed and flexibility necessary to compete if there is no mutual co-operation and involvement among the company's peers.

In order to understand how the organisational communication's development has been progressing, since a business process re-engineering was first undertaken, an examination of the internal company's culture is carried out in section 5.4 to verify its influence on the development of corporate communication.

5.4. Culture: A communication blockage

A large percentage of the executives and managers interviewed say they have been spending much more of their time on direct communication than before their business re-engineering programme started four or five years ago. As they suggested this is directly responsible for the improvement of the productivity and efficiency of their co-workers. The basic reason is that people feel more integrated and important inside a process, as stressed by a production operator [E14-4,21]:

> "If the manager is available to the employee I believe the employee will feel more important to the process, because he feels he can talk and someone will listen to him. Sometimes when you project something you think everything is right, but those really working on the project see it in another way. I think between employee and managers the relationship has to be based on more communication".

The managers of companies B and G, in particular, declared that the company's culture has hindered changing programmes on a greater scale than any communication deficiency they might have. They emphasised that before implementing and improving communication tools and procedures, people must be persuaded to think differently from the traditional ways to which they have been conditioned. Analysis from this inference reinforces the proposition of this research which implies that good communication strategies will drive businesses to better performance, because persuasion is all about a convincing communication strategy. Therefore, only good communication strategies can transform internal culture to facilitate change programmes, as argued by the process line manager of company G [G22-6,21]:

> "...we can't change culture unless we communicate. So, we have to communicate and we have to sell the benefits of the change".

One of the cultural managerial faults is expressed by the same manager in the statement below. Such a fault came from a time of heavy hierarchical structure, where superiors were thought to be the ones with total and unrestricted knowledge, as shown by the declaration of the process line manager [G22-6,23]:

> "I think we *(managers)* like to discuss the things we know the answers to and we avoid talking about those things we don't know. I think we don't want to trouble our people with our worries and we think they don't want to know, anyway... And that's true for some of the people, they are not interested, but other people that perhaps are a bit smarter or are a bit more interested for a wider picture, I think they could assist us with some answers if we ask them. I think the amount of communications has improved, but I still don't think that the operation's people get access to people above my level to get some of the bigger issues and to discuss it".

Getting people interested for the company's wider picture and for their own process is, according to the Brazilian managers, an issue of great importance and difficult to manage. The fundamental difficulty they had to face in the recent past was about the low educational level of their work force, even with cases of illiteracy among them. As explained by the production manager of company E [E13-7,23]:

> "...Well, two years ago, in the shop floor we had illiterate people working here, and it is very difficult to direct a person, to convince them they have to make a product with quality, for example. For them it doesn't make any difference. But because we have better wages than companies around here we have conditions to select better professionals and offer a better benefit, and opportunities to make them grow up in the company. This is important for us, because you bring people with motivation. Because of our more restrictive recruiting policy, it's working in the production nowadays people with high school, or with computer knowledge, or studying in a university. I can convince these people with much more success to produce with quality and quantity. I have another example; I recently had a cell with a bottleneck; to solve this problem we put in three people. Those people

studied the reason for the bottleneck and how to eliminate it, and among them they solved the problem. We didn't need to give an order".

As initially discussed in this study, there was no evidence of any major differences between the level of application, understanding and difficulties on undertaking a re-engineering programme between the British and Brazilian companies, despite the language and cultural differences. This is probably because, at the time of the research investigation, all the large manufacturing Brazilian companies involved in the project had equalled their work force educational level to the British standard. By replacing some of the people and being more selective with the work force recruitment all the four Brazilian companies investigated eliminated illiteracy among their personnel. Other cases, as stated by Humphrey's (1995) studies, show that some of the companies examined by him built inside their own site classes to elevate the degree of education of their people to a minimum level such as the secondary school. For new employment, none of the large companies admits anybody with less qualification than the minimum requirement.

As with the style of management, degree of employees' education, external culture, and trade union relationship, the seniority of a company's staff has appeared in the investigation as a sensitive factor with negative effects towards cultural changes, therefore resulting in difficulties to make corporate communication effective. The research observations indicate that the seniority of the staff also represented a strong constraint for the majority of the companies. To a certain extent, it is speculated that this may be one of the major reasons, apart from operational cost reduction, for the large

number of early retirals shown during the investigation. The superintendent director statement from company D demonstrates this concern [D11-7,28]:

> "...I believe the interest to participate in the company's affairs depends very much also, in my particular opinion, to the motivation of the people. In other words: 'What am I going to get with this?' If you say; 'I don't know what we are going to get with changes', certainly you will have some resistance. At first, the new generation are more inclined to changes. They are not so afraid of going to different experiences. Older people have developed with the years some premises that make it difficult for them to accept a new life, a new way of doing things. You imagine you know everything, and as much as you think you know something, you know nothing. Older people tend to think, 'Why change now, things always worked as it is'".

Another cultural factor that has closely affected and refrained companies from improving corporate communication is related to the formal and distant way traditional businesses have of treating their human resources. The concept of mutual co-operation did not exist before because of the large hierarchic gaps and strictly functional job activities. People were very much used to working individually. Both on the management or work force, they seemed to feel disturbed by this cross-functional ongoing structured re-organisation. The human resource manager at company F suggested that companies, as a whole, have a new perception about people. The way he and his company see this relationship, employees *versus* organisation, is demonstrated in his statement [F18-8,14]:

> "...companies have always expected profits, but if nowadays they only look for money they will not survive in this emergent market, in this society. Why has everyone started to talk about customers, and employees? Because you have people there, not objects. We committed a mistake by forgetting the human aspect. The Japanese started to show us this was a fault. We left aside for years the human aspect. First because, we have to admit, we have a strong admiration for technology, and finally, the human being is very complex, very difficult to

manage, consequently we just left this subject aside. After we find problems, and problems with no technical solutions, we've recognised that there is no escape any more, we must look at the human element. Then we have to think in communication, we have to think in satisfaction, because on the one hand you have people who buy our products, and on the other hand you have people who make them".

As a whole, the evidence from the investigation demonstrates that managers have been moving from a bossy and paternalistic style to a democratic one, based on partnership. At the same time managers and general employees are moving from a single oriented task to a multi-skilled function, learning the 'how's' and 'why's' of the job. However, the managers stated that this is happening in a much slower scale than the aforementioned cultural move. The CEOs stress that if the management does not change, the employee will not get it done.

Section 5.4. covered the approach and tools used during the re-engineering exercise. The subject discussed in the next section consists of data gathered during the first and second stage of the research project

5.5. Communication tools: The re-engineering approach

Observations made in the selected case studies demonstrate a much higher concern by the management to the issue of corporate communication. It has been constantly suggested by the team leaders that it is better over-communicating with the work force than missing opportunities for lack of it. The more communication the better, the more informal the better, and the better you train the people in operating a feedback system, to

bring discussions naturally, then the better will be the business performance (Young and Post, 1994).

The methods used to establish what the companies investigated individually understand to be the appropriate communications procedures are in the majority similar to the traditional procedures. However, recent approaches and, in minor cases, even new tools have been undertaken in an effort to gain people's commitment and involvement. Table 5.1 illustrates the most used tools in practice and how they are different in approach from the conventional ones. It is aimed to provide with this table a broader picture of the communication tools individually used by the companies taking part in this project.

Companies / Tools	BRAZIL				UK			
	CTBC - Telecom (D)	Electrolux do Brazil (E)	Xerox do Brazil (F)	General Motors (H)	Michell Bearings (Vickers) (A)	Ethicon - Johnson & Johnson (C)	Rank Xerox (B)	Kodak (G)
1. Communication Questionnaire			√				√	
2. Mass Meetings			√		√	√		
3. Briefings					√	√		√
4. News Board	√	√	√	√	√	√	√	√
5. Memorandum	√	√	√		√	√	√	√
6. News Letter	√		√		√	√	√	√
7. Video Tapes / Audio Cassettes	√						√	
8. Group Meetings	√	√	√	√	√	√	√	√
9. Training / Education	√	√	√	√	√	√	√	√
10. Seminars	√	√	√	√	√	√	√	
11. Internal network / Internet	√		√				√	
12. Work-out	√							
13. Work-Shop	√	√					√	
14. Management by Wandering Around		√	√	√	√		√	√
15. Grapevine-UK Troop Radio-Br			√					
16. Morning Coffee			√					
17. Executive Interview			√	√				
18. E-Mail	√		√	√			√	√
19. Representatives		√		√	√	√		
20. Satellite Communication			√	√			√	
21.Communication Book		√					√	

Table 5.1 - The communication tools mostly used by the individual case studies

A further consideration worth noting is about the present organisational vision of the new role of corporate communication. In other words, it is intended to show how the management vision of how communication methods should be to respond to the people's expectations in the modern and unpredictable business environment.

A production manager of company E stressed that effective communication strategies are the most important element in the success of any programme of change. In this regard he stated [E13-14,39]:

> "The best tool we found here is that we have always to reinforce the information, checking if it was done right, communicating, communicating and communicating again. We have to check people's understanding, taking care of the way you approach them to avoid defensive barriers".

Adding to that, a Human Resource manager of company F said [F18-9,15]:

> "Communication has been observed in recent times here as an important key when we started to look at the human being again. We've tried everything without looking at the intellect of an individual, but now this is recognised to be one of our most powerful strengths".

The data gathered in this case study strongly suggests that despite the fact that all the companies are concerned about employee communication, the majority are still attached to old practices of how to inform people. On the other hand, some of the old procedures have been used in a different way, and another few have been implemented to satisfy the speed required for the global information, and to cope with the cross-functionality needs.

The distinct tools presented in Table 5.1 represent those most used before and during the change programmes. Tools which did not present any particular difference in terms of innovation or were seldom mentioned do not appear in the table. Some tools presented were ticked for some companies and not for others; however, it does not mean they do not exist there, but their degree of importance was of low significance, according to the team leaders interviewed. Another consideration is related to the range of applicability. In other words, one tool might be extensively used at top levels (directors, and managers), but not in the lower levels (administrative staff, and work force). Nevertheless, the contrary never appeared within the data, which demonstrates that 'top people' are still being informed on a greater scale.

The primary intention of this section is to provide the reader with the current perspective of the corporate communication practices and vision which were credited as being more appropriate to cover the scope of changes. The remaining section examines individually the tools presented in Table 5.1, describing for each of the tools examples only from companies that would offer any degree of innovation (adapted from Belmiro et al, 1996). The recent approaches and the modern communication tools presented by the companies investigated are examined below:

1. Communication questionnaire

Employee satisfaction survey, customer satisfaction survey, and management assessment have been procedures largely used by the companies B and F in recent years. By the implementation of those tools they aim to measure the level of satisfaction from internal and external people directly related to the company's processes. Those

measurements would include issues such as: training/development, values, communication level, opportunities, wages, supervision satisfaction, level of participation on projects, leadership satisfaction, facilities in place, etc. How to improve the work structure as well as the work quality, gathering the employees' feedback are part of the business result expected. With reference to those internal and external assessments the human resource manager of company F stated [F17-5,9]:

> "...those surveys have shown to be an important thermometer during restructuring times. However, we know by past experiences such surveys do not have any efficacy if no immediate feedback, and/or immediate corrective actions are taken".

2. Mass Meetings

This communication strategy was used specifically by companies A, B and F at very initial stages of the implementation of their changes. The aim was to **inform,** at the same time, a larger number of employees about the reasons and objectives of the changes. Managers were expecting to develop an open communication reducing then, levels of distortion, as people would receive the same information all together.

A quality manager of company A defined the importance of a mass meeting through his statement [A5-2,3]:

> "... the key point of a mass meeting is to integrate simply everyone in a company at the same time, to hear the same message by the same person, through no intermediates".

Unfortunately, although the companies launched the overall objectives through the mass meeting they, for particular reasons such as lack of time, lack of financial support, or inexperience, have not continued the communication procedure. Nevertheless, further

investigations demonstrated that the sooner the mass meeting takes place, complementary applications of, at least, the tools 3, 6, and 8 must happen, as suggested by the quality team leader of company A, to secure the quality of understanding and future results. Despite the poor results, the BPR practitioners who used mass meetings perceived it as a powerful communications weapon which can be responsible, if accompanied by constant feedback, for starting the cultural process of aligning people to the same company vision with speed and 'noise-free'.

3. Briefings

Briefings have been used to inform small groups of people, each time, about technical matters, individual and company's performance / targets. Although this method implies direct communication, the process presented at the time of the interview still had a downward directive with little, or no feedback from the work force. A possible reason for this low feedback is very likely to be the remnant of a past rigid and autocratic management style, which promoted fear and distance from the distinct groups (organisational cast). This theory is clarified by the statement of shop floor operator of company A [A2-5,26]:

> "...as I said before, there are a lot of people afraid to ask questions and that's where faults lie. They ask questions when the supervisors leave the briefing session, but they should ask them there, that's the time to do it".

The statement clearly reflects the autocratic profile seen by the work force of management and supervision. However, concepts such as empowerment, two-way communication have been stimulated more in the past 3 years, as the manager of employee development stated [C9-1,2]:

> "...traditionally I would say company C has emphasised downwards communication, but now you have got more of a balance of discussion, and ideas are starting to move in two ways in a briefing, just because we have been stimulating them to put their ideas out, we have been challenging them".

The manager believes if people are challenged normally they respond to that, but if they are treated as 'children' the majority of them will respond as such.

4. News Board

The news board is largely used in all eight companies investigated, but it is not regarded as having a great impact on people, although it is used by many managers as a necessary tool to reinforce the spoken channel of communication. The argument for the use of the news board is strongly suggested from a production team worker of company C [C10-3,12]:

> "... it is new for us direct talking with some managers from the upper floor, it is nice because they ask us what we think about the way the job is going. They tell us new things, but there are some people in the shop floor that would say 'we did not hear about it'. Then, it is essential we have a kind of back up put in writing on a news board for everybody to see it. I feel that new information that comes through should be always put in black and white".

The quality manager of company H emphasised that it is the duty of a manager to find ways to get attention from those people to be informed. He stressed that ways of persuading people to become interested in something is in some way getting their attention. He compares this philosophy with the one marketing applies to customers. The quality manager says that such an approach has produced great results among his staff. In his own words [H29-7,36]:

"...some people are very curious to learn, to understand things, but others not. Then it is our function to find methods that will stimulate everybody to check out all information, the memos we spread around. In our news board, for example, we discovered we have to print things in much larger size, with colours and pictures that represent what we want".

5. Memoranda

Memoranda is a method also used on a large scale by the companies. In a traditional way, it carries technical information or results of events as well as brief design plans. For some managers the new expectancy is that paper work has to be reduced, and thus, people have been stimulated to produce concise information to put in a memorandum. The memorandum should serve just as a reminder. Specific details are left for direct meetings on a need-to-know basis. The industrial director of company E stressed [E16-5,14]:

"...in this case, no more than an A4 page is accepted, as we've been trying to reduce paper flow, and instead we want to increase direct contact".

As companies are becoming flatter, managers argue that they have less time to prepare long documents, therefore slowly but naturally companies have been reducing paper work by emphasising direct communication. Some messages of general interests have been fixed in the 'wash rooms', as exemplified by the superintendent director of company D, to attract the attention of more people such as those who would not stop in front of a news board or even those who tend to accumulate memos on their desks. According to the superintendent director [D11-4,12]:

"...the major part don't read informs, then we decided the best way to make them read it was fixing the information in the wash room, plus memos and news board. Although it may look funny it had presented good results... In a place where

'general people' do not have the habit of reading we have to be very creative to attract their attention".

6. Journals / News Letters

This is a broader employee communication channel, where its content is simple and generally focused in a more informative basis, such as social events, awards, products in the market, new technology. However, it has also been used for the majority of the companies interviewed to carry key company information related to its re-engineering vision, goals and achievement. Added to that, company F has a special journal called 'Kit News' which aims to deliver to the production operation's people technical tips, security information and advice to facilitate their job improvement.

7. Video Tapes / Audio Cassettes

Company D utilises video tapes to provide information on what is happening in terms of new projects or changes. Because company's D work force (engineers) is mobile and also the managers which are constantly attending to problems in different places, tapes appeared to be a practical, quick and the most direct way of cascading information. Advantages of this method are seem thus by the director [D11-7,27]:

"...this is one of the ways we cascade information, aiming to reduce noises and rumours".

This method aims to deliver the message as accurately as possible, through as few intermediates as possible. Company B perceived that their service force, the engineers, were always missing general company information. The engineers normally spend most of their time out driving from one city to another, from one customer to another, and to

get all of them together for a meeting, says the personnel manager, is a very difficult task. Then the company introduced audio cassettes systems to be played while they were driving. Thus, information could get to people quickly and accurately. Another advantage of this method highlighted by the managing director of company B is [B7-6,13]:

> "...video and audio cassettes represent a simple way of getting the same message across to a large number of people. Less papers means better communication, because people are not very good at reading things, many of them would not bother, but they will put the video or audio on for five or ten minutes".

8. Group Meetings

Much more focused, nowadays, on direct contact and feedback, group meetings are not only a tool for passing out information. As observed at the time of the interviews, most of the management were quite enthusiastic about re-affirming their purpose or vision of getting people to work together. Group meetings in traditional ways used to be a privilege of management people; however, recent business changes and the emphasis on the concept of cell's manufacturing or team work, which has been more specifically applied into the shop floor, have transformed the conventional group communication. There is now a larger delegation of responsibility of diverse tasks to the teams, and consequently the need for local group meetings involving supervision and members of the teams is stronger. Companies B, F, G and H have called the cross-departmental meetings with higher frequency to discuss matters directly related to their business processes being examined. Referring to the recent improvement in communication in terms of the efficiency of cross-functional group meetings the material flow manager, a re-engineering team leader of a supply-chain process, stated [G20-3,18]:

"...the most important difference in terms of communication here is because of the supply-chain meetings, where people from manufacturing, distribution, customer services get together to review performance of the previous week and look ahead to issues that affect the supply-chain. Getting together physically and having a meeting with people with different functions along the supply-chain has improved our communication flow. I suspect that including people from different sites into a meeting in which they can discuss plans that will affect all has been the biggest change".

9. Training / Education

Undoubtedly, the pressures of globalisation, the possibilities of decreasing market shares, and the explosive technological change have forced companies to take radical actions to improve productivity, flexibility, and speed (Hammer and Champy, 1993). A complete restructuring came as the best answer for all companies investigated.

The 'new' training / education approach introduced in most of the companies investigated, more specifically the companies B, D, E, F, and H, emphasises methods such as seminars and work shops. The use of IT for staff training has also been a strong vision in which companies A and B, in particular, have done primary studies for its implementation. Their vision is that a larger number of staff could access the internal company's network for specific and general information and training modules.

Traditional company culture has been identified during the data analysis as one of the most serious form of blockage during the planning and implementation of their changes. That is one reason why a much higher investment has been directed to the management to persuade them to change attitudes towards a more flexible, and interactive working style. It is expected they would be the mentors or coaches to the rest of the people.

However, the reduction of investment is greater when talking about work force levels. The imbalance in terms of investment in training and education towards the global business structure is considerably large. However, both Brazilian and British companies think they can reverse it, as soon as they get their top people into the new culture.

10. Seminars

All Brazilian companies emphasised the human aspect when organising seminars to their top people. The emphasis on seminars attributed by the companies D, E and H has not only been to update people on technical or commercial matters, but also to highlight issues such as human interaction. Many specialists in human behaviour, communication, and even psychologists have been brought into those companies to talk about people's expectations and feelings. Such seminars have the purpose of driving managers to question themselves, their beliefs and attitudes. The supply manager of company E stated [E12-9,26]:

> "...in these seminars the speeches and exercises drive us to bring the human side of each one of us. Which means, I represent not a manager to company E but a person whose function it is to create challenges and help others to solve them. What it is intended is to induce top people to learn how a 'man' learning more about himself could interact better and consequently deliver a more effective communication to his people".

11. Internal network / Internet

Because we are operating in a world of satellite communications, people are creating a culture of instant communication (Cronin, 1994). The people's expectation is for immediate information. As soon as things happen they expect to know, not 10 minutes later or one hour later says the managing director of company B. He adds [B7-6,12]:

> "...when talking to employees we identified that people's expectation are; 'every day I should know something'. It is very difficult to communicate nowadays, people are naturally demanding more participation, more interaction. I think we have to use technology to our advantage, to try to cover this expectation. Networking and satellites links are excellent. We in the near future will be able to deliver information to people in the speed expected".

The business quality manager from the manufacturing site of company B added [B26-16,26]:

> "...what we set up on the Internet is a two-way communication process. If there is something I need or have concerns about I'll put it on the system. It is good because many other people will have access to the question and answer, which may be their problem too".

12. Work-out

This is a specific communication procedure so named by company D. It was created to solve critical and urgent issues. The advantage of this method is stressed by the director's statement [D11-7,27]:

> "Usually when we call a work out, people from key areas get together for a day meeting, to exhaust an issue until a solution is reached. It is a practice we use to brainstorm many possibilities of doing something".

13. Work-Shop

The work shop was a communication method used only by company E. The aim of this method was to motivate people to talk about people, and to examine their relationship within the work environment. It is a complement to the seminar they held in the company; however a work shop is usually promoted outside in a non-business

environment to favour a different climate. The supply manager at company E said they would discuss things like [E12-9,26]:

> "Who I am, What I like, What I do not like. The idea, once more, is to bring people together, it is to dissolve the culture of 'I am the boss'".

14. Management by wandering around (MBWA)

This so-called new culture has as one of its fundamental principles making people work as a team, as partners which have no more individual interest, but group interests (Harrington, 1991). In order to create efficient teams it is necessary to empower people, and to empower people the company's team leaders should be able to show they believe in their people's potential, and that the company is taking them seriously, declares the quality manager of company H. Management by wandering around (MBWA) was perceived by most of the managers interviewed as an important method to demonstrate to the work force, and to the administrative staff, that those managers from the offices on the 'upper floor' are not the 'untouchable' people. The production operator of company A shows an interesting view about MBWA demonstrating what employees normally feel about the upper floor's people, as he calls them [A2-3,13]:

> "... the manager X came to talk to me, he asked me what are the problems I have here. This one has an interest in our job. Most of the others would pass here rarely, and they wouldn't even say hello".

This procedure has been largely implemented, and the investigation of results suggests such methods work very effectively as a thermometer of people's perception following other communications. Furthermore, people undoubtedly feel themselves as part of the team, the 'company team'. Consequently they are more likely to co-operate, as demonstrated by the statement above.

15. Grapevine - UK / Troop Radio - Br

Most of the managers interviewed declared the grapevine as a natural human characteristic, therefore it represents a variable which organisations should learn how to control. The research observations have led to the conclusion that both management and the work force are strongly dissatisfied with the grapevine / troop radio, either because it seriously distorts the real information or because such leaking induces subordinates to think they have not been entrusted with the whole picture of facts. Although the grapevine (troop radio) usually carries a lot of distortion of the information, this form of communication is recognised as very efficient in its speed of propagation. Keith Davis' studies indicate that over 75 percent of the information passed by the grapevine is correct (Hicks and Gullet, 1981). However, it still leaves an average of 25 percent of distortion and inaccuracy, which undoubtedly, as state most of managers interviewed, can cause enough confusion to distort completely the content of the message. Although the human resource manager of company F agrees with the disruptive power of the grapevine, he is very enthusiastic about the concept if well managed, believing that the troop radio can work favourably to the company's interests. He affirms that overall the troop radio presents an important characteristic to be used to advantage in modern business, that is its speed of infiltration. He stresses [F18-4,7]:

> "...if troop radio is unavoidable, why not utilise this system to do something formal, as its quick flow is a well-known advantage. We need to inform people much more than ever before, because we need their involvement into cross-functional processes. That is why we thought to make use of this tool in a different way. We are working in a project where key information or information of the general people's interest will be clearly processed, recorded, and played, let's say, in our canteen, during the lunch time for everyone in the company. We hope this process can amplify the people's sense of direction (knowledge). There is no way

to say; nobody told me that, I did not receive this paper, etc. They will be talking to each other about something everybody heard."

16. Morning Coffee

This programme was implemented in company F with the primordial intention of making better use of the whole working time available. The idea was that the director of the company would have his coffee in the canteen to mix with different people, at different levels, as separate canteens did not now exist within the company, to talk about issues of interest.

17. Executive Interview

This is another communication procedure created also with the intention of stimulating upward communication among the different hierarchy. The human resource manager of company F said that their chief executive wanted to see more interaction among managers from different functions and levels. The same argument was offered by the quality manager of company H; as multi-skilled professionals are more in demand than specialists they want people getting to know other peers' jobs and reality. In this regard, the human resource manager of company F stated [F18-4,7]:

> "This interview seeks to be something very open, where you talk always with the boss of your boss, about the company's vision, new business, work improvement and satisfaction, etc. and everyone has to go through it, at least once a year".

The manager argues that this is another way to try to bring more spontaneity for talking, to induce people to meet each other, instead of being isolated in their niche.

18. E-Mail

E-mail has been largely used in companies B, D, F, G, and H since the beginning of the 1990s to communicate to people in other offices at other sites, when the meetings were not possible or convenient to be arranged, so crossing in this way organisational boundaries. The method differs from the internal network in the sense that it does not present appropriate features (facilities) for training programmes, for using interactive design software (design → manufacturing), etc. In other words, e-mail mostly conveys written information. This method has also been extensively used to communicate with customers and suppliers. A managing director of company B argues [B7-5,11]:

> "...this is technology helping to put people together".

19. Representatives

The procedure of having representatives to link interest of the work force to that of the organisational is a practice that has been used for many years for the majority of companies interviewed. The majority argued that this is an essential communication channel, since where the number of employees is large, then it is more appropriate to select a few to represent interests. However, company E adopted this system only in 1992. Previously, all labour issues were treated only between the company and the trade union and all the other operational questions would just be forwarded from supervisors. The production manager of company E explains the advantages of this channel and how fundamental it was for them in terms of time saving, and productivity [E13-6,20]:

> "...this direct dialogue with the work force has shown - in terms of productivity - fantastic gains. If we have an internal question such as labour matters the decisions will be taken between company and employees only. The feedback from the representatives in our meetings is better, the solutions are quicker. We had strikes in the past that lasted even weeks, until we had got solutions. Today, we do not

have this problem anymore, because we have got the people's trust just by talking to them directly and matching words to actions. This is fundamental".

However, opinions related to the validity of this tool were strongly contested by a human resource manager of company A. In his own words [A5-11,48]:

"The representatives are the biggest blockages we have at the moment here, when talking about communications. They some times distort our information, confusing everybody. In some cases, they are elected because no one else will do the job. And that is bad, because people do not get the best representation".

The research conclusion of those contradictory thoughts between companies A and E is that more important than the method used to improve communication, therefore results, is the human approach - respect of opinions, trust, actions matching words, the clarity of intentions - towards the balance of interests. It is the right choice of people, and the right 'size' of promises that can make this channel work harmoniously.

A further consideration that is worth mentioning is that what is good for one company, might not be good for another. That is why it is important to understand first the limitations and circumstances of the chosen communication channel applied, and secondly, what is the particular environment and organisational culture, because even past management or past trade union styles may have left 'scars' on employees' behaviour which restrain them from total and mutual co-operation.

20. Satellite Communication

Video conferencing has only recently been part of the daily communication of some large companies world-wide. The reason for its use is attributed to the flexibility and

speed demanded for the global market (Hicks and Gullet, 1981). There has been more demand for instant solution of problems; therefore by using 'satellite communication' subjects such as political impasses and technical matters can be discussed face-to-face almost instantly. Furthermore, as another important advantage, costs and time can be saved by reducing the amount of travel. However, it has been argued also by the same managers who defend 'video conferencing' as a flexible and dynamic tool, that such a method can never be entirely substituted by the human face-to-face interaction.

The managing director of company B argued that their fundamental reason for implementing this communication channel was to gain, and to satisfy customers' needs before their competitors. Furthermore, they could overtake the rapid technological change by communicating with experts over the world, obtaining information more quickly than the others. The business quality manager of company B - manufacturing site - believes [B26-17,27]:

> "...the only way to compete is by using information technology to our advantage".

21. Communications Book

Another initiative established by companies B and F was to produce a communication book, which aimed to create a kind of communication standard within the organisation. This book was meant for all the people within the whole corporation world-wide, with due acclimatisation to each country. It was expected, also, that this document would assist those organisations to promote the construction of a new company's culture. The Human Resource manager of company F explained [F18-7,11]:

> "...we put together everything about communications tools, forms, facilities, rights, obligations, etc. We planned the book to be an effective communication tool that

would focus not just in training practices, but also in education and culture. We want everybody to know what they should do, and should have".

5.5.1. Discussion

The research evidence demonstrated through the twenty one communication tools (channels), examined in the previous section, point to the conclusion that organisations undoubtedly have been trying to find ways to get their people involved, to develop cultural transformation towards team work and partnership concepts. Such transformation is revealed by the research data as being one of the most important achievements before any consistent result towards business process concepts. However, recognition of the need for a change of culture and more serious action to implement that change by improving communication procedures is coincidentally happening in the majority of the case studies companies about one or two years after the beginning of the re-engineering plan, when resistance was becoming a threat to continuous developments.

The respondents' statements point to the fact that communication has been dramatically improved compared with the traditional indirect, formal and strictly downward forms. Further research evidence shows that changes in communication systems have begun, as mentioned previously, in the past four or five years with the introduction of business process re-engineering. Nevertheless, such communication improvement, and the attempt to deliver to people information in ways they can most easily visualise it, is not recognised by companies C, D and E as an effect of the BPR concepts, either because,

as explained in previous chapters, (a) some managers (change leaders) did not relate their changes to BPR and even because they did not understand the concept by itself, or (b) because the work force, as a whole, was neither aware of the re-engineering concept, nor of the broader changing picture. In fact, what the work force knew about changes was related only to some very few particular aspects which involved their jobs. They were aware that changes were happening everywhere within the company, involving different levels of people, and that communications had changed positively. However, they also could not attribute those changes as being a benefit of re-engineering. Overall, much is spoken about people's involvement, but observations show that the kind of 'people' more involved with the whole communication process are still very much at management level.

Nevertheless, the impact of more flexible, dynamic and interactive communication has, as proved by the work force and managers' statement, already taken its place within the businesses culture. If re-engineering relates its success to the ability of the people to solve problems together, the communications structure which has been put in place has dramatically contributed one step forward. The final findings however, point to a formulation of a research model which locates 'communication' in the epicentre of a complex business net. The links of this net are represented in the diverse concepts, already discussed in sections 2.5.1 and 4.7, identified by the business process re-engineering advocates and industrialists as being of fundamental importance. Such findings suggest that the net is totally unstable, therefore more susceptible of falling off if link(s) are missing. More details of this research model are examined in chapter 7.

In conclusion, the findings suggest that it is a mistake to place too much reliance on conventional methods of communications which do not deliver the answer to a particular company's needs. Experience in the industry investigated shows that success in communication can only be achieved by moulding any particular system or channel to fit the specific needs of the group. Although most of the respondents have declared their communication system improved dramatically, they recognise there is still a lot to be done. In some cases, more appropriate tools are still to be implemented, and in other cases the human resource has to be educated to make best use of what is available. Moreover, a balance of interests between employer and employees has to be found to guarantee willingness, and to make the communication channels the 'means' to the business success.

Finally, section 5.7 covers with more detail the role of information technology within a business process re-engineering project.

5.6. Information technology: A BPR enabler

Information technology has received considerable attention from the industrialists since the late 1970s, by implementing modern technologies in the production sectors and mainframes to co-ordinate administrative areas. However, the current research showed that the emphasis of information technology within the re-engineering context is related mainly to (a) the communications systems and (b) the business process support analysis. Companies B, H and F, emerged as the main IT investors in the past four years. In second place were companies A and G.

In order of investment and importance, the tools implemented aiming to satisfy basics re-engineering requirements, established in (a) and (b), are:

- network system (internal network, internet)
- e-mail
- video and audio systems
- video conferencing
- business process analyser software (mapping process system)

The advantages expected with such systems are:

- speeding up of communication flow
- speeding up of decision-making
- getting geographically dispersed groups to work together
- eliminating departmental borders
- sharing data bases (global environment)
- re-designing business processes
- directing access to customers
- eliminating intermediates from the communication process
- staff network training

In conclusion, the results have demonstrated that the present emphasis in information technology is on sharing information, which should be available to all who need it. According to the quality and personnel manager of company B, services site, the networking system is certainly the way businesses are going.

5.7. Summary

The most relevant issues concerning organisational communication within the re-engineering programmes are:

(1) Much higher emphasis attributed by the managers interviewed to the issue of communications during the re-engineering exercise, proving what is claimed by the literature.

(2) Observations during the investigation show the industrialists' awareness of the potential of the company's human assets and recognition that BPR implies deeper cultural changes, therefore more attention to people has been another important re-engineering issue, as demonstrated by the interviewers' statements.

(3) Different practices concerning the communication tools and approaches have been adopted; however the importance of information still prevails at the top levels of management.

(4) Although the emphasis on the issue of communication has been high since the planning stage of the re-engineering, all the respondents interviewed demonstrated that further actions towards the improvement of communications strategies came mostly after the first, or in majority, after the second year of BPR implementation, usually because resistance of the employees presented a greater threat to the plan.

(5) the data gathered throughout the investigation shows that although communications has been recognised as an important factor in improving the chances of success in re-engineering, other variables such partnership, empowerment, team work, coaching, and all the related cultural changes have been considered to be just as important as the discipline of communication to the success of organisational changes. It is expected that the balanced and simultaneous implementation of the variables will enable the structural changes to be made as required.

(6) Information technology has played an important part during the vision and implementation of re-engineering. The largest investment is attributed to the massive acquisition of the computing technology as an enabler of the required organisational network.

CHAPTER 6

Research model of a re-engineering environment

6.1. Introduction

This chapter aims to describe the final results related to the research problem examined. Such results have also helped the investigator formulate a framework that will assist the industrialists during their planning and implementation of a re-engineering programme. In the light of the findings, section 6.5 offers a guideline with recommendations to the industries.

6.2. Final analysis of the research

The research focus, or the question problem formulated was based on the premise that: '... a well developed communications infrastructure could significantly improve the success rating of a business process re-engineering project.' The findings suggest to a large extent that corporate communications are immersed in all single aspects of re-engineering. In other words, the investment shown in the communications processes, and the greater degree of involvement of the re-engineering team leaders in the communications issues, certainly reflect changes in the internal role of people *versus* processes.

As discussed in previous sections the vision towards establishing a different approach to communication is stronger, the actions illustrated demonstrate, undoubtedly, the changes of approach and the perception of some people of how communication should be designed to drive businesses to better results. However, none of the interviewees could determine quantitative measures of how far improvements in the communications strategies, in isolation, have led to improvements on the businesses. Nevertheless, it is indisputable, as the industrialists argued, that the positive effects of more open and flexible communications between the personnel involved in the re-engineering process have given more dynamics (mobility) to their specific areas.

Management people have alleged that the range of changes happening, at the same time, were strongly inter-related with changes in the company and employee's culture, as illustrated in figure 6.1. Observations on the organisational facts have shown that transforming the way people do their work (to satisfy new business process requirements) will not happen if changes do not occur in the way people perceive (internal company's culture) how their work should be done, and the process to change people's perception, as implied by the managers, is through implementing a better communications structure. Therefore, the required path starts with a strong communications strategy to assist businesses in changing their culture (beliefs, attitudes, structure, job's definition, information process) to promote better chances for the re-engineering success. The aspects, often present within the organisations' vocabulary from the case studies investigated, are illustrated in figure 6.1 around the culture box (diagram). According to the companies, at least theoretically, the only way to change culture is by empowering people, sharing responsibilities and stimulating them on their

sense of belonging: *'I own this bit of work, I have to take care of it'*. Being partners represents complicity of duties: one is supposed to help the others to achieve the common objectives. Only a team of empowered partners can satisfy the cross-functionality structure needed when working for a business process concept. The IT focus here is not to automate processes, but to optimise them and to satisfy the actual customers' requirements for immediate results. In order to satisfy those requirements it is known that bureaucracy has to be eliminated (flattening structure) to speed up processes and decisions, and therefore results. Aiming for even more efficiency, brainstorming and parallel sections (ring organisational structure) can promote quicker, and zero defect solutions - as information would not be cascaded up and down so often for approval, amendments, re-work, etc.

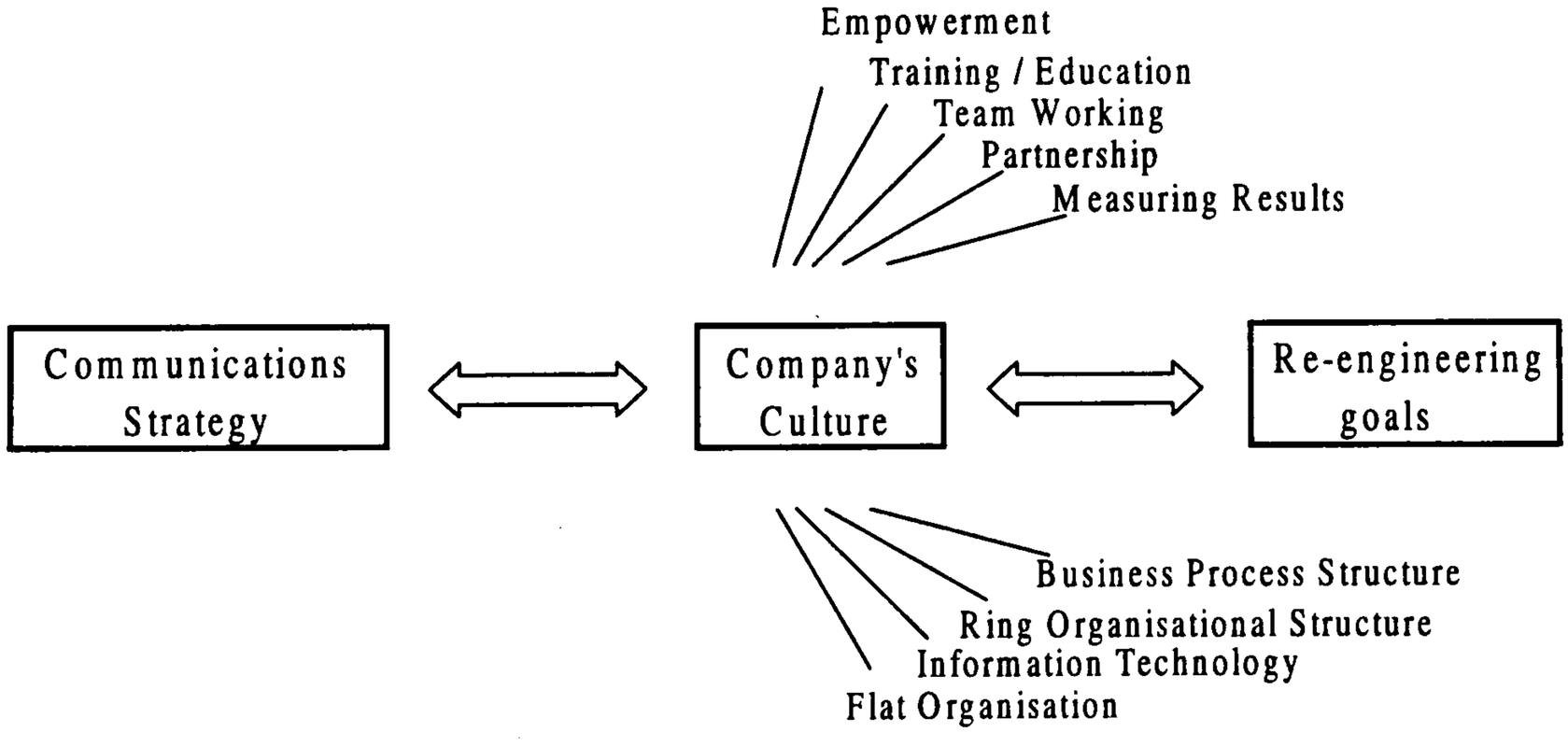


Figure 6.1: Communications *versus* Culture *versus* Re-engineering

The research findings, however, demonstrate that the communications process is happening the other way around, without exception within the case studies investigated. In other words, normally, after planning the vision and objectives of the re-engineering exercise, with very few top managers involved, companies go to the implementation

stage believing that participation and interaction by a larger number of employees in the plan the executives and managers decided upon will be gained by a simple mass meeting, which in reality, although important, is a channel that serves only to inform people about the framework of the project. The common issue in this kind of channel is that changes will not be possible without help of the people. The 'truth' demonstrated by the statements of the work force is that very few employees, in fact, had understood the key messages and the consequences the meeting would have on them and on the company.

When proceeding with the implementation without proper measurements of the people's perceptions of the concepts proposed, companies, again, without exception, experimented with the inertia to the development of the plan caused by the enormous resistance of the staff to the things they did not understand or agree with, i.e. changes they believed to be unnecessary. Finding this resistance to be a serious obstacle to the success target, organisations are going back to re-evaluate planning and implementation of the change strategies. Not surprisingly the key aspect to the disruption of their processes is lack of appropriate, and in some cases any, communication at all at the initial stages of the project, which according to Kotter (1995) represents one of the major error identified during the majority of companies' transformation. As demonstrated, mainly through chapters 4 and 5, the people's perception of some changes related to the approach and tools of communications had only begun to change one or two years after the re-engineering planning stage.

Further to recognising the importance of developing communications strategies better to integrate people and processes, as shown by the eight companies studied, companies B and F have produced a substantial document, a communication plan, clarifying the role, responsibilities and duties of the individual company's groups, as well as suggesting the tools, forms, frequency and targets for their corporate communications (appendix 8 shows the communication plan developed at company B). Based on the experiences that such a broad transformation involving people, processes and technology would not work without the support and the understanding of a larger number of staff, those companies have begun to reinforce their communications process by trying to eliminate, or at least to reduce people's resistance, in an attempt 'to save' the up-to-date implementation and investments. The importance attributed by the companies to the communications process is exemplified in a statement which is included in a communications guide recently produced by company B:

> "Communications must be treated like all business processes and should be reviewed regularly to improve the process and meet the needs of everyone in the company".

It was expected that with this document people would have a clear positioning of their duties and rights about what they should inform and be informed of. As this project was very recent in the companies B and F, by the time the interviews were done, no measurements related to its effectiveness were able to be offered by the team leaders. They only expected that with such clear roles in hands people would not have the excuse of failing in communications, since the document clarifies by whom, to whom, why, how, when/how often, and the targets expected to be achieved, if the communications

plan is followed properly. It certainly demonstrates a serious attempt to get things right at the first time, which shows the emergent quality communications concept .

By making linkages among various parts of the data, comparing British and Brazilian change experiences, it was the intention to find patterns (activities, priorities, actions, business experiences) which when integrated in a model, could contribute to the development of the re-engineering exercise within other companies which aim to undergo similar programmes. The patterns observed in the Brazilian and British companies undoubtedly presented a strong similarity, and the differences expected were not seen as relevant in the category of companies investigated, i.e. large manufacturing/engineering sectors (see section 5.4, page 171). Through identification of the common patterns, a communication model - research framework - was produced and it is described in detail in the next section.

6.3. Findings leading to a construction of a research framework (model)

The research model described in this section suggests through its individual stages, in the flow chart diagram, steps to guide companies on building a communications process framework. Such a framework aims to assist companies in improving the success rating of their undertaken re-engineering project. The sequence described throughout the flow diagram is of high importance to be considered, in order to facilitate the process of reducing possible damaging and persistent resistance at the implementation stages. The construction of this model was entirely based on the experience of the respondents, and

upon their suggestions and comments. The comments are related, for example, to the differences in procedures and strategies they would undertake if they had to start the project again. Their positive experiences related to their communications approach were also used to inspire the formulation of the model.

The BPR communications process model illustrated in figure 6.2 presents a strong focus on people and processes. Information technology appears in the model as being an essential enabler of the cross-functional structure, assisting the efficacy on exchanging information among team and partners (external / internal) with speed and accuracy, by accessing networking systems, for example.

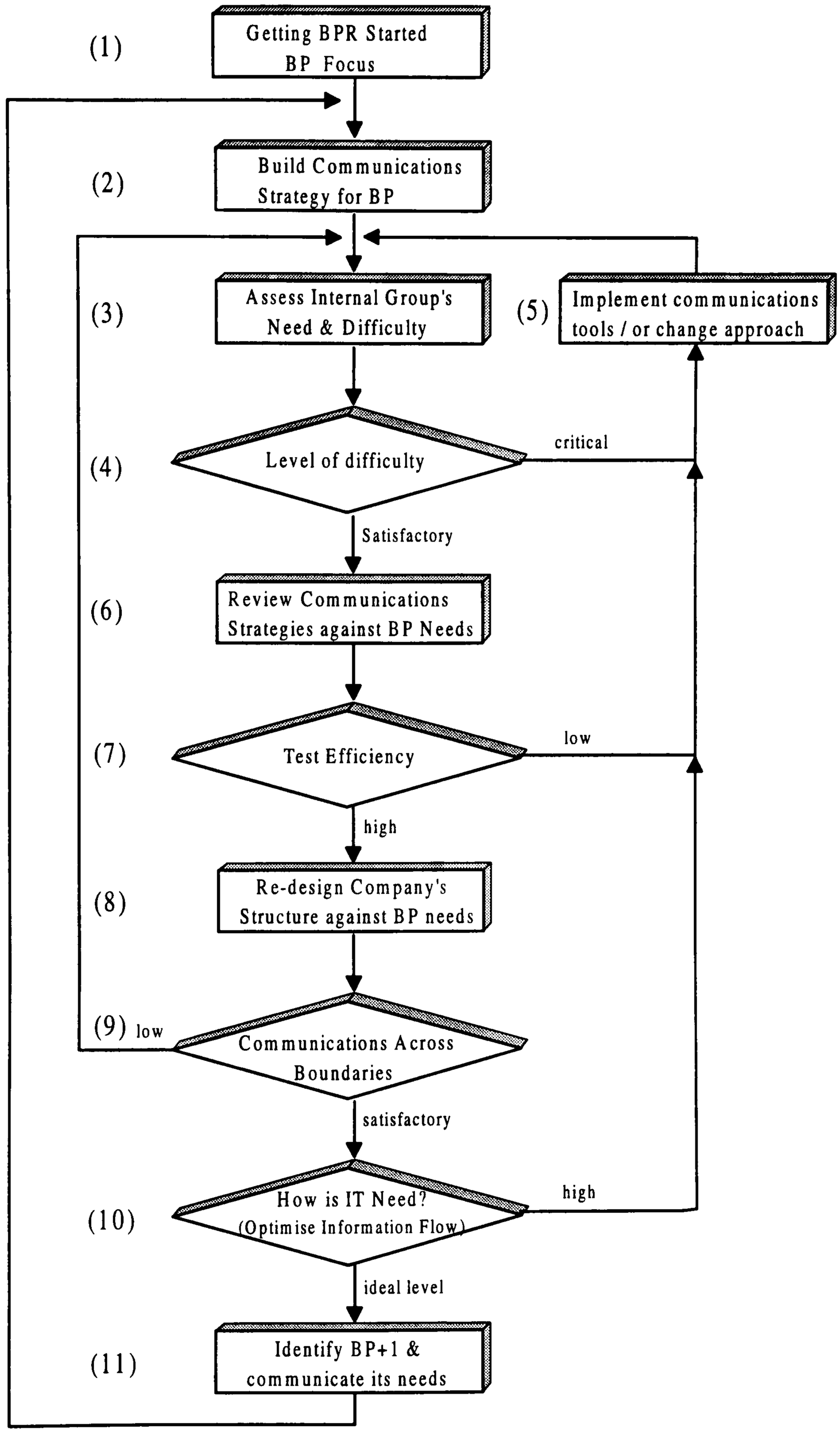


Figure 6.2: BPR Communications Process Model

In order to understand better the construction process of the model, its individual stages were numerically classified and the respective description of each stage is presented below:

(1) It is of paramount importance in this initial stage of the project to identify and clarify with the re-engineering team the reason, vision and focus of the changes - optimising business processes [BP]. Assessments were made in order to understand the perception of the management and employees of which weaknesses and strengths of the processes represent an essential indicator (thermometer) to assist the team leaders with building strategies and deciding on the scope of the changes. Another vital thermometer is the external benchmarking, i.e. comparing the plan with the best practices existing in the market.

(2) At this stage more people should be involved in the process to assist with the planning and implementation of the communications strategy. An appropriate communications guideline, strictly formulated to the specific company's culture and needs, should be available to the whole company's personnel, indicating everybody's rights and duties in the communications process. As the managers in charge of the re-engineering exercise are very often carrying the responsibilities of their routine affairs simultaneously, therefore (extremely) engaged in many activities, not having enough time to dedicate to corporate communications, then a person, an employee who is communication team leader, strictly responsible for business communications, should be appointed to guarantee that the messages have been sent, received and understood and the appropriate channels are available to the different groups. Although the companies

investigated stress the manager's role as being one of communicator, it was clear they mostly did not have the time, and sometimes even the necessary skills to communicate. Then, the need for a communication leader (such an appointment is mostly appropriate for large manufacturing companies, as shown in the cases studies considered).

(3) A second assessment, now specifically related to the decision made (plan) about the re-engineering project, should be prepared to measure the perceptions and needs of the staff. This assessment should evaluate how people think they should fit into the structure planned, what skills they are lacking, how the company could re-allocate them to fit better into the new system and their own aspirations. The re-definition of jobs could not be made without discussing with each one of them the company's objectives (with the aim of reducing future resistance).

(4) Through the previous assessment it is possible to measure the level of difficulties from different groups (e.g. managers, engineers, administrative staff, shop floor operators) and determine which one should be closely monitored to attend to their needs and expectancies. If the level of difficulty is critical go to stage (5) otherwise go to (6).

(5) The high level of difficulty commonly presented during the change programmes within the case studies investigated, was either because the messages were not reaching the groups, e.g. administrative staff, shop floor employees, or because of the high level of misunderstanding / misinterpretation mostly from those not directly involved with the re-engineering plan, e.g. some of the general managers, engineers (section 4.1 - figure 4.1). Even among those directly involved with the project, in all the case studies,

contradictory interpretation about re-engineering and its objectives when comparing with their partners were present. It was observed that in this case, the time and training they had in order to learn the new concepts were short or almost non-existent. They were almost pushed into the concepts by the senior managers. Stage (5) offers the opportunity to review the communications tools (channels) and approach (cross-check chapter 5), based on the present needs and deficiency demonstrated by each group, to guarantee accurate understanding and consistency on the time needed. It is recognised that even training/education sessions are a form of communications.

(6) If the level of difficulty faced by the groups is not critical, as zero-absolute 'problem' free is unrealistic, when the subject in question involves human aspects not machines, the communications strategies should be reviewed now, against the selected business processes [BPs] needs. The BP needs are related to the accessibility of proper communication channels which would permit high operational performance of the BP - e.g. cross-functional meetings, networking, mapping process system.

(7) Test the efficiency of the existing tools (channels) against the level of bottlenecks if existent. Compare internal efficiency with other possibilities in the market (benchmarking). If the efficiency is low return to (5) otherwise go to (8).

(8) Accurate plans, skilled personnel, efficient communications processes can all be under-used by the structure of a heavy hierarchical company, by demarcation lines, making the business process unable to operate with the flexibility and cross-

functionality necessary. Re-designing the company's structure, therefore is paramount to satisfy BP requirements and to facilitate communications flow and process efficiency.

(9) Test, by internal company assessment whether communication across the boundaries offers any kind of obstacle. If the obstacles offer strong barriers to the communication flow return to (3), otherwise go to (10).

(10) Test specific IT tools that could optimise the efficiency, flexibility and speed of the information inside / outside the organisational structure - e.g. internal networking, e-mail, EDI, mapping process system, video-conferencing. If the need for IT is high return to (5) otherwise go to (11).

(11) Identify BP+1 to be redesigned and communicate the specific needs of it. Select personnel that more appropriately should be involved, then return to (2). Reinforcing and re-examining communications strategies against a changing environment are the cornerstone issues to the BPR success.

Further to those stages, considerations were taken to explain the importance of the breadth (scope), and depth aspects of the communications process, when deciding on a specific business process. Better to explain and graphically visualise the integration of those aspects into the research model, the helical communication model proposed by Professor Dance (section 2.4.1) was used. The concepts to explain Professor's Dance model have not presented an entire interest here, but rather the features of the helix were thought to produce clear graphical images to describe breadth and depth. Although

adaptations of his model were made to suit the research proposals, undoubtedly the helical model was developed to reinforce aspects, such as two-way communication and feedback. The malleability of a helix certainly demonstrates the constant changes in the human communications process. Therefore, communicators should constantly be aware of the need for adaptations in the communications strategy.

The scope considered in each one of the stages depends on the specific need required by the business process being re-designed, as mentioned in section 2.3.2; one process can resume itself in a simple area, e.g. programming, while others may involve different areas, e.g. new product development (product design ⇒ testing ⇒ configuration ⇒ manufacturing, documentation). Therefore, the investment on the resources and personnel as well as the working time dedicated to re-designing a BP can appropriately be adapted according to the breadth and depth desired and needed.

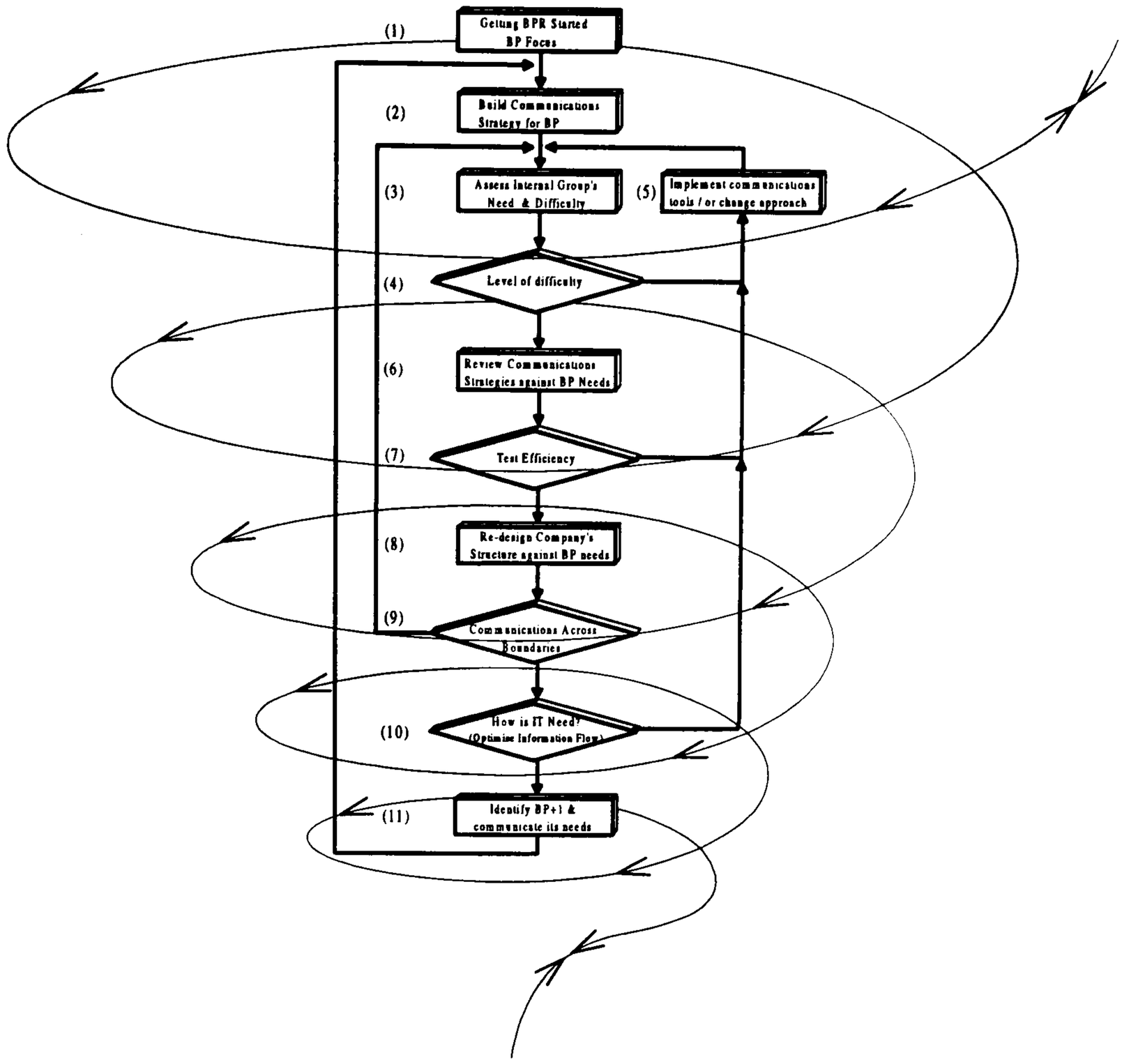


Figure 6.3: The breadth and depth considerations of the research model

Depth is represented by the spring features of the helix, according to its extension or compression. It depends on how necessary the analysis is on the details of the sub-processes and activities. In other words, the depth consideration is given depending on whether a macro analysis can answer the business queries or a micro (detailed) analysis shows as being more appropriate. Such a choice varies according to the symptom of weakness shown by the process, or by the standard of satisfaction and accuracy determined by the company's quality policy.

The breadth is given according to the number of areas covered by the BP. The area (dimension) of the first level of the spiral is reduced or enlarged as the scope of the business process determines.

In conclusion, the communications process model has described stages which offer a framework to promote better chances of improving the rates of success of a re-engineering programme, and which leave key messages to improve and develop the quality of the corporate communications as a whole, resulting from, the managers recognition that there are 'people' within the business, not only 'processes', and to have an efficient process, organisations must have people who fully understand it. Therefore, the focus of the model is on people's understanding, and comprehension of the re-engineering programme. That is why communications tools / approaches have to be checked constantly to accommodate the difference in the people's way of learning, understanding and perceiving information. Secondly, only by repeating communications through as many channels and forms as possible with consistency and accuracy, can companies persuade people to buy the 'vision', to work towards the most efficient achievement of the objectives. Finally, feedback and diverse groups involvement can guarantee fast actions and responses to difficulties.

6.4. Discussion of the research findings

Throughout the interviews conducted during this research one consistent theme has been the inconsistency of the vocabulary and meaning attached to the term business process re-engineering (BPR). This is particularly true among and within the case companies

studied, but it is also true for much of the management literature in the public domain (see Burke and Peppard, 1995). Although some authors have recently begun to focus on the importance of establishing an individual identity to BPR, to date many have failed to deliver.

Observations lead to the conclusion that independent of the country, and the differences of the language and culture, the problems faced were very much the same. Regardless of the spoken language in a company, there seems to remain a confusion of BPR vocabulary, and contradictions such as (Belmiro et al, 1997):

- Proclaiming almost any programme of change as a BPR initiative with no evidence from the literature to support that claim.

- Defining BPR, or some of its important key concepts, in completely different ways from any existing written definitions.

- Proclaiming the programme being undertaken as BPR at one point, then as something different later on, or even declaring BPR to be a fashion term with no lasting credibility.

- Declaring a programme of restructuring as BPR in practice, but having in the same company important key people not supporting the process.

- Engaging in BPR, but not involving the mass of employees, or failing to seek the acceptance of certain changes from company employees.

One reason that possibly explains the misuse and misinterpretation demonstrated above, is that the delegation of responsibilities to learn, plan and implement a re-engineering project was delivered to only a few senior people and managers (called team leaders). The duty has been left to them to learn and absorb the philosophy and then convince their colleagues of the value of the project and, in the longer term, pass the message on to the operational people. In the latter case, as testified by most of the managers, it has been said to be the company's vision, but it was not actually happening. In other words, generally, lower levels of employees were only being told 'how' to do certain parts of their jobs in a different way. That was, in fact, all the general employees knew about re-engineering. Once again, the *vision* within the companies was that everybody should know at least the why's, and how's. Although some managers positively and enthusiastically said the involvement of lower levels is a fact, as demonstrated by the operational people's statement (chapters 4 and 5), the attitudes have not changed much. However, most of the employees agreed that certainly there have been positive differences from the past.

The findings described above clearly demonstrate that the companies are transforming themselves into learning organisations (Mills and Friesen, 1992) as the mechanisms and attempts to transfer knowledge to the various levels are an evident part of what has been demonstrated by the re-engineering experiences investigated.

Normally, the responsibilities to undertake a BPR project were delegated from senior personnel to some of the middle management, who in the majority of cases, even in the initial stages of the project, had to share their time between normal business routine and

the re-engineering planning. The problem was aggravated by their large responsibilities on restructuring the business at the same time. Moreover, as re-engineering relies greatly on cross-functionality, more of the management time has been dedicated to the task of getting to know what other colleagues (from different functions and levels) have to say. On the other hand, as businesses are getting flatter, as shown in all cases investigated, fewer people do the jobs and more attribution of responsibilities again is given to managers. In resumé, a greater amount of work has been 'imposed' on the managers. As the research observation indicates, it is certain that the 'survivors' from the delayering organisational process will have to take on more work until the whole organisation becomes lean and flexible, and all or at least most of the business processes are re-designed, eliminating the non-valued-added activities that nowadays overload most of the staff. Furthermore, the observations made show that strong emphasis has been given to concepts such as partnership, empowerment (sharing and/or delegating more responsibilities with the operational people) to support decisions and gain people's interest from a broader picture of the business, as the team leaders stressed.

However, it is speculated that more than being part of the re-engineering programme, more than promoting the sense of belonging and of being part of the business's family as nicely implied by the team leaders investigated, the above concepts are coming to assist, in reality, a general organisational need for extra 'brains', meeting the need for extra staff in some areas.

Experiences of such changes have reflected in resistance from peer managers who do not agree with losing power and status, and resistance from some operational staff, who

believe they are not paid and trained for extra responsibilities. This demonstrates the kind of barriers re-engineering team leaders have to go through.

In order to overcome such difficulties, however, the industrialists have shown a strong tendency to improve, update and discover tools and forms of communicating to their people the objectives and needs of the business, thus getting them to assist, and show interest in the organisational and mutual objectives. As the production manager of company E stated [E12-12,32]:

> "The communication approach and motivation we've been trying to give to people is; the company has to grow up, and if it happens you *(the employee)* will grow up together. If the company grows, if the company is good in the market, you will be also good in the company... We tried to show to the people that it is a question of surviving. We need to participate and collaborate, modernise ourselves and the company, otherwise our function will not exist anymore because the company will not exist either. The great prize was that the culture has been changing. The motivation is not only money any more".

The research data has shown a greater interest to a more human-centred communication approach, which involves procedures such as face-to-face contact, feedback, two-way communication, etc., and the communications tools illustrated (chapter 5) indicate greater concern for getting the message right first time to a larger number of people (to satisfy cross-functional business structures). Although none of the businesses are operating cross-functionally, as proposed by re-engineering, there have been companies, in particular companies B, G, F and H which present in their organisational charts isolated 'business processes' run by cross-functional principles.

The importance of establishing the right communications procedures when undertaking any change in activities is clearly demonstrated throughout the research, therefore there have been many approaches and tools which have tried to involve people. Overall what this research certainly demonstrates is the management belief that modern business cannot be run in the traditional individualist style any more. So far as the new communications practices were concerned, none of the team leaders interviewed were able, according to them, to measure the results of the approaches. Nevertheless, they stressed that business would be much worse if they had not started to change their attitudes towards people, because the changes are coming not only from the modern business needs, fast IT development, or globalisation, but from the new aspirations of the society where their people are immersed. People, generally, want to know what is going on around them; nowadays they expect an order followed by a 'why'.

The research shows, as another important conclusion, that although the communications issue inside the organisations investigated has been the subject of greater investment in management time and effort, compared to that of years prior to re-engineering, there have been other key concepts such as empowerment, lean structure, partnership (for more detail see section 6.2) evolving at the same time as the improvement on the strategies of communication. Therefore, ensuring effective communication is not sufficient on its own. According to some of the managers interviewed, those other key concepts are just so important as the communication issue. This confirms the research developed by Pettigrew and Wipp (1991) which demonstrates the value of considering the relational aspects amongst different managing strategies in order to succeed in achieving the envisaged outcome.

6.5. Recommendations to companies

In an attempt to improve the chances of success on the implementation of the research model by the companies involved in re-engineering activities, a guideline, or list of recommendations was constructed based on the experiences of the Brazilian and British case studies. It is expected that those recommendations can assist (alert) companies in identifying possible pitfalls or gaps created by lack of recognition of priority measures and actions that should be in place before implementation of further steps of the plan, which may cause instability for the future of the project. The list is presented in order of importance expressed during the diverse research meetings that took place. The recommendations are:

(1) **Stimulate** competitive **ideas** throughout the organisation. Check the overall staff view about the company's vision (employee, management **assessment**).

(2) Assess the re-engineering plan and objectives against company's **culture**. Be prepared for certain resistance and plan possible ways to overcome it.

(3) Build initial **Vision & Mission based on a touchable reality** - human resources skills, information technology, market perspectives, etc. Anything that exceeds people's expectations too much and takes too long to happen can be damaging to the morale, because of the difficulties in matching words with actions, especially if the execution time takes too long to finalise.

(4) Appoint an **employee communication manager** to deal with communications issues. His (her) role is mainly (a) to develop communications strategies to answer the different expectancies of the diverse groups, (b) to implement tools and approaches that suit people's profile better - educational level, skills (c) to identify how the sensitive issues should be delivered (d) to dedicate special time for groups who present more resistance to the changes - identify the 'whys' and 'how' to solve it. (e) to cover areas where communications are deficient because of some leaders' lack of time or even their inability to inform and update their people or peers.

(5) Cascade the re-engineering vision and aims from the top to the very bottom line. Explain through all communication channels how the plan will affect the 'individual'. Use **diverse and different forms** - face-to-face, horizontal, feedback - and **channels** (tools) - team meetings, 'attractive' news board, electronic networking - which closely identify the individual groups' needs and comprehension (chapter 5).

(6) Build a **company's communications strategy**, showing clearly the communications responsibilities (Who should, what, how, when, where), rights, facilities (tools, human resources). Create a special educational policy which supports a cultural change towards employees' attitudes - everybody, no matter how simple the idea appears at first, should step forward and present it to the team. Give special attention and investment to communications strategy - written guidance - which should be at least the same as to what is dedicated, for example, to marketing strategy, growth policy strategy, competitive strategy, and more recently to the benchmarking strategy.

(7) **Formulate a fair rewarding system** to compensate employees' participation and contribution. If the company is trying to create a team culture, appraise the team rather than the individual. This represents an important step to eliminate the individualist, i.e. functional culture.

(8) **Keep a record** of everything that was said; normally people do not forget what was promised. Document all strategies, changes and measures of the achievements. This process contributes to helping team leaders to match words with actions.

(9) **Eliminate 'mental hierarchy'** between management and other groups (work for the culture of no demarcation lines). Everybody should work to help one another to achieve the company's number one objective - keep the company in business by integrally satisfying the customers.

(10) Constantly **review** the company's **communication strategy**. More rigour on communicating objectives / results.

(11) Build **official measurement programmes** to identify the weaknesses and strengths of the business processes, delivering more energy to those which present lower scores. However, do not waste time on re-designing processes which do not present current relevance to the interest of the customers, or do not directly affect the 'core processes'. Measures are an important data to demonstrate (prove) the needs for change and the results of it. Therefore, it can be a valuable communication force.

(12) Determine the level (extent) of **influence of the internal, external culture** as well as the effect of the **national culture** during planning and implementation of a BPR programme. Proceed with an **acclimatisation** of the re-engineering plans and targets if necessary. In other words, when borrowing another company's re-engineering model examine possible alterations according to the specific company's profile. Give this some thought even if the borrowed model came from a sister company.

Chapter 7

Conclusions and recommendations for future work

7.1. Introduction

This chapter presents a brief research conclusion to reinforce and elucidate key messages, results and experiences related to the research and its findings. Finally, recommendations are suggested for the development of future research, which is believed to be essential to the continuous improvement of such a complex and vital organisational issue - the search for effective corporate communications.

7.2. Research conclusions

The research has identified seven major factors which reflect the importance that has been attributed to the issue of corporate communications.

(1) One of the main findings was the communication faults that have existed since BPR emerged into the management scene. Undoubtedly, the literature has initially failed, for the practitioners, to clarify what the core of re-engineering is. As publications appeared with new definitions, the possibilities for misinterpretation increased, as these

definitions lacked standard vocabulary and consistency. This early damage certainly undermined the real value of re-engineering among some company leaders.

(2) Despite confusion and misinterpretation of the real essence of BPR, and regardless of the name attributed by some of the managers to their internal changes, eliminating non-valued-added time to individual processes and changing the way people do their work have been the focus on the organisational transformation. In other words, despite the existing confusion around BPR and the slow progress of re-engineering efforts, in consequence of resistance and difficulties, the actual organisational focus is about processes.

(3) In consequence of the high level of resistance observed during implementation phases of the re-engineering exercise, more and more attention and investment have been given to improve communications infrastructure.

(4) Despite substantial changes in company structure to support the optimisation of their business processes, the organisations studied, although flatter, still operate with a bureaucratic and rigid structure. In many ways, internal communications have improved and challenged the traditional structure towards a flexible, networked organisation. Nevertheless, although indisputable, the flexibility gained is not widespread, and it is still blocked by the remains of an unchanged traditional structure and by human resistance. Observations have clearly demonstrated that knowing what should be done, i.e. the company's vision, has been debated far more by the managers than the actual accomplishment of it. It is expected, however, that in the mid term one member of staff

will convince the other of the value of mutual participation, two-way communication, and the cross-functional approach, as in a domino effect. By that time the company's structure will be sufficiently flexible to support process re-engineering, and as the number of people truly involved in the change concept grows larger, so will the results towards a re-engineering be more quickly accomplished.

(5) As demonstrated by the data gathered during the investigation, there has been a widespread consensus that nothing - process optimisation, people and company structures - will be transformed without the right communications procedures in place. Along with the re-designing processes, so have changing people's attitudes, ways of working and behaviour been the core treatment of the re-engineering exercise.

(6) Although the analysis of returns of investment related to the application of information technology to support the business process structure is not conclusive, as most of the companies at the time of the interviews were either on implementation or the initial testing phase, it has been alleged by most of the re-engineering team leaders interviewed that cross-functional interaction, global communication (suppliers, customers, international expertise, instant corporate decisions) cannot be achieved without massive investments in IT (this may be only a large organisation's perception). In other words, as businesses are going global, observations show that corporate communications have been moving substantially towards an electronic approach: networking (e-mail, internet, video conferencing, internal network), EDI, recorded messages - audio, tapes, interactive software, etc.

(7) Finally, regardless of the company's nationality or country of operation, i.e. Britain or Brazil, and therefore the differences in language and culture, the experiences related to the previous six factors described are very similar. The investments related to employees' communication and to information technology have all been alike. The significant difference is that Brazilian companies, while struggling to understand and re-design inefficient processes, were also heavily investing in acquiring the world class quality performance (ISO 9000s). British companies, on the other hand, were already achieving their quality awards by the mid 1980s.

7.3. Recommendations for future research

As demonstrated during the description of the thesis, the richness of content, the variety of expressive experiences, the practitioners' doubts, mistakes, the perceptions of the individuals, could only be realised by the exploratory case study investigation (qualitative approach). The advantages of the methodology are indisputable, however, it was not possible to reach a final or a decisive conclusion - as a 'yes' or 'no'. As observed throughout the description of the research, the core of the 'research problem', i.e. whether a communications infrastructure enables BPR success, and other parallel issues also of high importance, e.g. the effect of IT investments on the efficiency of BPR, could not be precisely measured till the end, as the time and methodology chosen did not allow the investigator to follow the case studies to their completion. Furthermore, most of the re-engineering experiences investigated were, at the time of the interviews, in the planning or initial implementation phase. Therefore, the research findings only suggest strong evidence, and not the decisive answer to prove that

investments in communications strategies, infrastructure and approach can in isolation be responsible for the successful achievement of the re-engineering vision.

To complement this line of research, it is recommended for future work to perform a long term **action research** programme to measure the advantages and disadvantages of the individual communications strategies adopted. Detailed consideration should be given to distinct variables, e.g. employees' educational level, group hierarchy, size of the organisation, influence of IT, influence of each communication tool, relationship of each communication tool/approach to the individual/group. Final measures, indicating the different effects of communication tool / approaches on the efficiency of the internal groups' performance *versus* the rate of success of a specific business process re-engineering would be expected to be accomplished by a long term research study where the efficiency of the communications strategy adopted could be measured against the 'behaviour' of major variables under change.

APPENDIX 1

Preliminary questionnaire

Heriot-Watt University

Department of Mechanical Engineering

Survey on Business Process Reengineering

Please return to:

Tania Belmiro
Department of Mechanical Engineering
Heriot - Watt University, Riccarton
Edinburgh - EH14 4AS, U.K.

Should be returned **within two weeks of receiving**

1. I am completing this survey because: (tick one bellow)

- it was addressed to me ❑
- delegated to me by addressee ❑
- forwarded from addressee to me ❑

2. My name is: _____
   Title of position held: _____
   The company: _____
   The company's address:_____
   Phone number:_____ Fax number:_____

Instructions and notes for completing this survey:

The survey is intended to establish the nature and extent of business process reengineering (BPR) activities in British based manufacturing and engineering design companies.

There are 8 questions, which should take about 10 minutes of your time to complete . If you answer just the first three questions, it is still very important for me to receive back the questionnaire.

Your responses will may be used anonymously in a research report.

Thank you for assisting me and contributing in this important undertaking.

3. Have you heard about business process reengineering (BPR)?

- Yes ❑
- No ❑

4(a) If yes, where from? (tick all that apply)

- programme ❑
- general magazine topics ❑
- specialised magazine / journal ❑ Title _____
- you know about BPR from other companies' experiences. ❑
- seminars ❑
- others specify ❑ _____

(b) What do you already know about BPR?

_____

_____ .

(c) Do you currently believe that BPR could benefit your company?

- Yes ❑
- No ❑
- Don't know ❑

Please explain your answer:

_____

_____ .

5. Are you applying BPR in your company?

- Yes ❑
- No ❑

If yes, answer questions 6, 7 and 8.

If no, are you interested to find out about BPR in the context of your own company?

- Yes ❑
- No ❑

Please comment?

_____

_____ .

6. What kind of apprehensions have you noticed when changes are proposed?

- apprehension about losing jobs ❑
- apprehension about learning new tasks ❑
- apprehension about losing their post ❑
- difficulty in accepting new ideas, due to uncertainty ❑
- others specify ❑ _____
- none ❑

7. What kind of communication system have you applied to communicate the changes proposed by BPR? (tick all that apply).

- informative letter ❑
- informal talking in each department ❑
- speech by senior management ❑
- personal meetings ❑
- posters ❑
- simple memoranda ❑
- group meetings ❑
- seminars ❑
- directive from senior management ❑
- others specify ❑ _____

8. Please indicate in **rank order** which groups experienced the greatest difficulties during recent business process changes? (where 1 = highest level)

- general managers ❑
- engineers ❑
- administrative staff ❑
- employees from the shop floor ❑
- teams involved in reengineering ❑
- suppliers ❑
- sub-contractors ❑
- others specify ❑ _____

Please include any further comments you may wish to add.

_____

_____

_____

_____.

APPENDIX 2

Selecting case studies (Survey)

Heriot-Watt University
Department of Mechanical Engineering

Survey on Business Process Reengineering

Please return to:

Tania Belmiro
Department of Mechanical Engineering
Heriot-Watt University, Riccarton
Edinburgh - EH14 4AS, U.K.

Should be returned **within two weeks of receiving**

1. I am completing this survey because: (tick one bellow)

- it was addressed to me ❑
- delegated to me by addressee ❑
- forwarded from addressee to me ❑

2. My name is: _____
   Title of position held: _____
   The company: _____
   The company's address:_____
   Phone number:_____ Fax number:_____

Instructions and notes for completing this survey:

The survey is intended to establish the nature and extent of structural change in British based manufacturing and engineering design companies.

There are 11 questions, which should take about 10 minutes of your time to complete . It is very important for me to receive back the questionnaire, even if you do not answer every question.

Your responses may be used anonymously in a research report.

Thank you for assisting me and contributing in this important undertaking.

3. Has your company undergone structural changes within the past 10 years?

• Structural change in this context is defined as a managed alteration to the company's culture and vision. The objectives of this change are to increase efficiency and productivity, lower costs, increase quality and customer service.

(a) Yes ❑

(b) No ❑

(c) No, but some restructuring is likely in the next 3 years. ❑

4. If you ticked **(a)** or **(c)** please answer the remaining questions below, otherwise go straight to question 11.

In your company's restructuring which of the following techniques have been used or do you intend to use? (tick all that apply)

- Total Quality Management (TQM) ❑
- Management by Objectives (MBO) ❑
- Just-in-Time ❑
- Kanban ❑
- Quality Function Deployment (QFD) ❑
- Business Process Reengineering (BPR) ❑
- Benchmarking ❑
- Advanced Manufacturing Technology ❑
- Optimised Production Technology (OPT) ❑
- Computer Aided Production Management ❑
- (CAPM).
- Computer Integrated Manufacturing (CIM). ❑
- Group Technology (GT) ❑
- Others specify ❑ _____ .

5. What is the main reason for restructuring?

- The company reached a crisis point ❑
- The company achieved success but but wanted more improvement. ❑
- Others specify ❑ _____

6(a) How important do you think the participation of the company's employees is to the success of the planned change?

	From managers and engineers	From production workers
▪ Very important	❑	❑
▪ Important	❑	❑
▪ Marginally important	❑	❑
▪ Unimportant	❑	❑

(b) Do you believe your company's employees are enthusiastic to take some decisions on their own and to create and/or offer new ideas for improving their jobs, and consequently for benefiting the company?

	managers and engineers	production workers
▪ Yes, sometimes	❑	❑
▪ Yes, most of the time	❑	❑
▪ No	❑	❑

(c) Do you have some policy to motivate the company's employees in the task mentioned above in 6(b)?

▪ Yes ❑

▪ No ❑

If yes, what is the policy?

▪ Awards ❑

▪ Career development ❑

▪ Salary enhancement ❑

▪ Others specify ❑ _____

7. How do the company's employees react to projects that involve change?

	managers and engineers	production workers
▪ Very co-operative	❑	❑
▪ Co-operative	❑	❑
▪ Non-co-operative	❑	❑

8. What kind of apprehensions have you noticed when changes are proposed? (tick all that apply)

- Fear of losing jobs ❑
- Apprehension about learning new tasks ❑
- Apprehension about losing their status ❑
- Others specify ❑_____
- None ❑

9. What kind of communication system have you applied to communicate changes proposed by the company? (tick all that apply).

- Informal talking in each department ❑
- Presentation by senior management ❑
- Personal meetings ❑
- Posters ❑
- Regular bulletins ❑
- Group meetings ❑
- Seminars ❑
- Direct orders ❑
- Others specify ❑

_____

10. Please indicate in **rank order** which groups experienced the greatest difficulties during business changes? (where 1 = highest level)

- General managers ❑
- Engineers ❑
- Administrative staff ❑
- Employees from the shop floor ❑
- Teams involved in reengineering ❑
- Suppliers ❑
- Sub-contractors ❑
- Others specify ❑ _____

11(a) Have you heard about Business Process Reengineering (BPR)?

- Yes ❑
- No ❑

(b)If yes, where from? **E.g.** journals, magazines, seminars, other companies' experiences. _____

APPENDIX 3

Investigative questionnaire

A - Research guideline (Stage 1)

Note: The questions listed below were applied according to its appropriateness to managers, operational work force and administrative people.

Heriot-Watt University

Department of Mech. & Chem. Engineering

Investigation Research 1

Introduction:

1- When have the company recognised the need for change such as proposed by re-engineering? Why?

2- What does business process re-engineering offer in special for the company's objectives?

3- How is the company's management culture?
How about the work force culture?

4- How much, in percentage, have the company allocate to internal communication compared to external communication?

People's involvement:

5- How important is communication in the process of change?

6- What do you consider the major blockages in the communication system used in this company?

7- How do you consider the employees' reaction to the proposed changes within the organisation?

8- What kind of communication system does the company usually apply to inform or persuade people for changing? (Before or After changes)

9- Does the company have a policy to motivate more participation and decision making from its employees?

10- Do you think communication influences employee productivity in your company?

11- Do you think the work force requires more internal communication to accomplish what has been asked in terms of changes?

12- If yes, what kind of information has been required? (e.g. employee matters - salaries, safe, appraisals, etc or company's matters - how changes will affect them, necessary skills, etc.)

13- How should this information be passed on?

- by management (face to face)
- by company's magazine
- by seminars, work shops
- by meetings - e.g. small groups, mass meetings
- by notice boards, etc.

14- Can you state the type of information, if any, you feel you get too much?

15- Can you state the type of information, if any, you feel you do not get enough?

16- How does the people in the shop floor (nowadays) feel about the issue quality of communication?

Company hierarchy:

17- How many hierarchical levels are there in this company? Is there any difference from the past?

18- How easy does the flow of information go from one level to other?

19- Do you think there are any communication fault in the process used by this company to transmit information to the work force or administrative people? Does the company have any plans of improvement related to this issue?

Feedback Information:

20- Does the company collect feedback information? (Before and After changes)

21- If yes, which are the methods used?

- Who is involved?

22-Do the managers discuss proposed changes with their employees before the change occurs?

23- Do you consider that feedback information is usually sent at the right time?

24- How do you think leadership style influences feedback communication?

Upward communication:

25- What about upward communication? Has the company somehow been using this communication method?

26- What kind of information should be communicated upwards?

27- How would you describe the employees' desire for interaction with management in your organisation?

28- Does the managers think upward communication to be important? What are the channels used to stimulate upward communication?

B - Research guideline (Stage 2)

Heriot-Watt University

Department of Mech. and Chem. Engineering

(Open-ended questions from 1- 27)

General Company's Information:

1- What does business process re-engineering (BPR) represents to this company?

2- What is the business process currently involved in a re-engineering exercise?

3- Has this company re-engineered another business process previously?

4- How has the business process selected to be re-engineered affected the company as whole? In other words, how it has affected the departments not involved within this specific business process?

5- Has the implementation of the reengineering programme been changed from what was originally envisioned?

Initial Parameters of measurements:

6- Once established the reengineering **plan / vision** had this company identified, at that time, the few vital ***parameters*** to be measured in the future? The parameters that could serve as a basis to demonstrate the degree of success or not of the changing programme? The parameters could be, for example:
. reducing costs
. customer satisfaction
. revenue
. or _____

7- Do you have any report of results which shows, in percentage, how far the parameter(s) is from the initial goal? (or an approximate idea of this number)
Example: If parameter is costs; the company reduced costs by X% in two years time, but the original goal was X1%.

8- Would you attribute that performance to the reengineering exercise?

9- Can you accurately (informational system) measure performance from the parameters you have defined?

Company's culture:

10- Is 'culture' a criteria being considered by the reengineering teams?

11- In terms of cultural transformation how this company has changed towards the re-engineering concepts?

12- Is the internal company's culture a barrier to the re-engineering philosophy?

13- Is the external culture, where all the company's employees are immersed, a barrier to the re-engineering vision?

14- What have been the necessary elements **changed / eliminated** within the company structure during the implementation of the reengineering project?

- elements changed:
- elements eliminated:

Communications Practices:

15- Can you list the different communications mechanisms in use **after** the reengineering programme? (If you have any)

16- How clear is the business process philosophy to the employees? How do you communicate that (tools and approaches)?

17- Has internal communications been a barrier to the implementation of BPR?

18- Have the employees, as a whole, being active within the re-engineering planning and implementation? (employees = from top executives to shop floor people)

19- Can you specify what are the layers (hierarchy) involved in the planning and implementation of any of yours BPR project? [e.g.: chief executive, 1° line of managers, engineers, administrative people, etc.]

20- What is the degree of training / education towards the business process philosophy?

21- How different is the approach of the diverse **Communications Procedures** within the company towards the reengineering philosophy?

Information Technology:

22- What is the company's vision related to communications tools such as; e-mail, net-working system, video conferencing?

23- Is Information technology an important element within the company's re-engineering project?

24- How different is the approach of **Information Technology** towards the reengineering philosophy?

25- Has this company implemented or modernised any sector of the company to support the BPR vision?

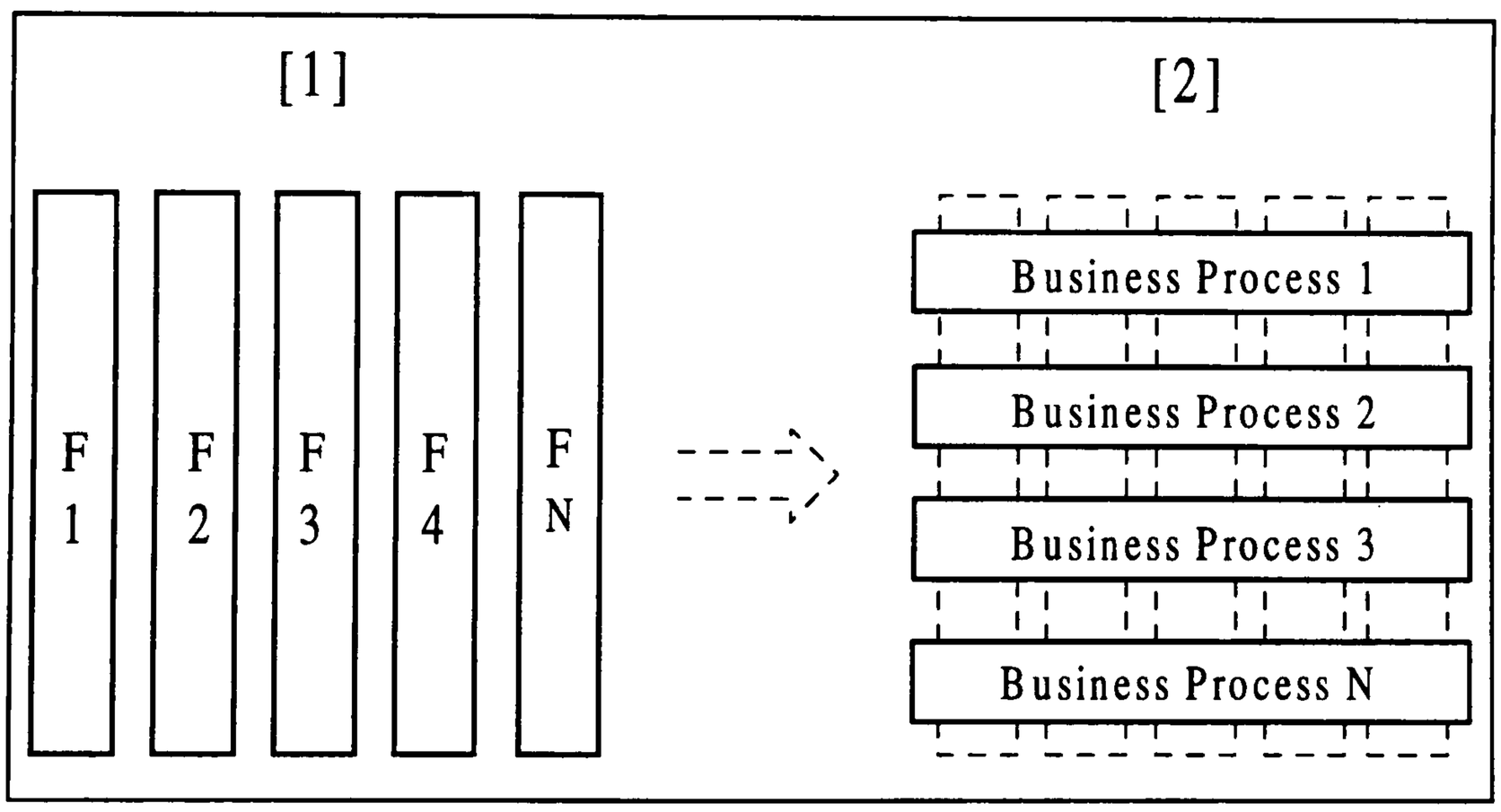
Results:

26- If, so far, this company has got any success result by its re-engineering project;
What have been the elements which contributed to that? (e.g. personnel, structural, physical, cultural, technological)

27- In the case of unexpected or poor results:
What are the elements that should be considered and haven't been?

(Close-ended questions from 1-8)

1- Today, which of these structures more closely resembles Rank Xerox's management structure? (If it is the case, circle one of the letters)



Note:

- F1... FN = Function 1 ... Function N; where F1 could be marketing and FN manufacturing.
- Business Process 1 could be, for example, a supply-chain which could include; suppliers → finance → manufacturing → marketing / sales → customer services → retailer ...

  Business Process 2 could be product development, etc

2- If it is neither totally **A** nor **B**, how different has the company been working from A (functional structure)?

(If you find relevant, this space was left for a drawing)

3- Has Rank Xerox's organisational structure changed since the beginning of this project?

▪ hierarchy	***Y***	***N***
▪ downsizing	***Y***	***N***
▪ internal / external relocation	***Y***	***N***
▪ serial production line **to** cell manufacturing system	***Y***	***N***

4- From the idealisation of the re-engineering project **to** the implementation of it, what have been the functions which are operating inside the re-engineering team?

▪ Manufacturing	***Y***	***N***
▪ Sales	***Y***	***N***
▪ Marketing	***Y***	***N***
▪ Distribution	***Y***	***N***
▪ Finance	***Y***	***N***
▪ Human Resource	***Y***	***N***
▪ Design	***Y***	***N***
▪ Accountancy	***Y***	***N***
▪ Customer Services	***Y***	***N***
▪ Suppliers	***Y***	***N***
▪ Retailers	***Y***	***N***
▪ *Others*	_____	

5- What kind of changes happened towards the re-engineering philosophy?

▪ employee commitment approach	***Y***	***N***
▪ employee empowerment approach	***Y***	***N***
▪ partnership concept	***Y***	***N***
▪ team working	***Y***	***N***
▪ coaching concept	***Y***	***N***
▪ training / education	***Y***	***N***
▪ communications procedures (Human *X* IT resources)	***Y***	***N***
▪ reduction of jobs descriptions	***Y***	***N***
▪ delayering (reducing functions)	***Y***	***N***
▪ reducing bureaucracy	***Y***	***N***
▪ changing from functionality to business processes approach	***Y***	***N***

6- Can you list the communications mechanisms in use inside the company?

paper communication:

■ memorandum	*Y*	*N*
■ newsletter, magazines	*Y*	*N*
■ news board	*Y*	*N*
■ *others*	_____	

spoken communication:

■ regular meetings with people same function	*Y*	*N*
■ regular meetings with people from different functions	*Y*	*N*
■ mass meetings	*Y*	*N*
■ management by walking around	*Y*	*N*
■ *others*	_____	

electronic communication

■ e-mail	*Y*	*N*
■ internet system	*Y*	*N*
■ internal networking	*Y*	*N*
■ video conferencing	*Y*	*N*
■ electronic data interchange (EDI)	*Y*	*N*
■ mapping software analyser	*Y*	*N*
■ *others*	_____	

7- Are any job categories allowed to query and receive on-line information such as: e-mail, internal net-working?

Y *N*

8- Can you classify in a rank order, what are the major company's focus during the planning stage of the reengineering?

■ quality products	____
■ quality services	____
■ customer satisfaction	____
■ information technology	____
■ company's structure	____
■ reducing costs	____
■ search for new markets	____
■ overtake competition	____
■ improve human resource quality	____
■ improve communications systems in use	____
■ others	____

Heriot-Watt University

Department of Mech. & Chem. Engineering

Survey on Business Process Reengineering

Please return to:

Tania Belmiro
Department of Mechanical & Chemical Engineering
Heriot-Watt University, Riccarton
Edinburgh - EH14 4AS, U.K.

Should be returned **within two weeks of receiving**

1. I am completing this survey because: (tick one bellow)

- it was addressed to me ❑
- delegated to me by addressee ❑
- forwarded from addressee to me ❑

2. My name is: _____
   Title of position held: _____
   The company: _____
   The company's address: _____
   Phone number: _____ Fax number: _____

Instructions and notes for completing this survey:

There are two questions, which should take about five minutes of your time to complete . It is very important for me to receive back the questionnaire, even if you do not answer one of the questions.

Your responses may be used anonymously in a research report.

Thank you for assisting me and contributing in this important undertaking.

1. What is your definition to the term business process?

2. Please, can you list the business processes selected from your company in the re-engineering exercise?

APPENDIX 4

A Sample of the Transcribed Interview Data

Department of Mech. & Chem. Engineering

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Data: 06th of April 1995

Transcription from an interview at Company D - CTBC Telecommunication Ltd.

Abbreviations:
- **T - Tania (Interviewer)**
- **I - Interviewee**

Interviewee 11 - Superintendent Director
Duration of interview - 3 hours
Environment - Shared Office
Quality of Environment - no interruption, but with external noise
Original interview is in Portuguese

Note: The following four pages have been abstracted from the transcripts of the interview at company D.

1- When did the company recognised the need for changes?

I- We started with the restructuring about 6 years. And it wasn't just in CTBC, but in the whole group 'ABC - Algar'. The group is still familiar, but due to the size it is now, they envisioned the need for a restructuring.

2- How many hierarchical levels are there in the company? Is there any difference from the time CTBC started its re-engineering project?

company's structure

I- We took the pyramid structure, which used to be here six years ago, and we transformed to what we call 'network structure'. We decreased from 15 or 14 hierarchical levels to just three.
Then, we brought together the directors to the basis of the company. The three hierarchical levels we have now are: the directors, the co-ordinators (group of managers), and the associates (that are the other employees of the company).

3- What have been the difference perceived, in terms of flow of communication between management and employee?

Company's Structure

I- With this new organisation, you transform the company in many niche, in many nucleus of business, in many strategic areas of business. And with smaller numbers of people the communication flows quicker. But because as our organisation became very flat and because our policy of open doors people now are working more in teams, or niches, the flow of communication have been faster, everyone feels involved in the process. There are more opportunities for natural and spontaneous feedback, we feel". Practically, it is like you have sub-companies inside one company. We call it 'Result Centre'.

Culture

You answer for the result in your area, and the whole team answer for this result also. Then, you meet much more people in this process.
The environment of boss and subordinates finished. Now, what we have are partners in the company, all with the same responsibilities.
Companies like CTBC with 1300 people usually the information run slowly. Although we have improved a lot we still are not perfect. It becomes more difficult the diffusion of information in a country like Brazil, where in general people don't have the habit of reading. Any written information you pass common people will hardly read it, in fact. Then, it is difficult divulge information trough this channel.

4- How has those changes been affecting individually each employee?

Culture

I- In certain way, they are discovering their real vocation, what specifically they would like to do. We define 'satisfaction' as an important role in our company. Of course, if we think in terms of salary, we are still far from the excellence, or satisfaction.
If you have more freedom to talk more about your job, it's likely you'll find your right vocation. And this can even be outside the company, because sometimes one company doesn't fit to you.
We don't have anymore private offices, everything is more open here. The whole directors share this same large office. It is like a committee. People can come freely here and talk to us, with no restriction. Restrictions are something from the past.

5- Have those cultural changes started when the company decided for implementing business process re-engineering?

Culture

I- Exactly, it started a four years ago. It's a long time but this is not a kind of thing you can do in one day. You can't break things and start over, otherwise you'll damage the company. We had the intention to restructure, without damaging the company.

6- What are the tools used from the company to spread information about the restructuring plans to the whole employees?

Training / Education

I- We are a kind of company that invests heavily in training. We invest in education / training over one million dollars / year. Of course, in the first place we are supporting the directors and co-ordinators. In relation to the associates we have a project of formation (instruction) but it is different. The result Centre is trying to find the right tools to support people who are working here. Well, for a company like CTBC with

1300 people, it is difficult to implement the formation project to everyone at the same time, because it is a lot of people. This is a longer process.
But if we form the leaders, they will logically spread their knowledge, their information to the others.

7- Do you mean that kind of education, or instruction didn't reach directly the general employees of the company?

Training/ Education

I- No, it's not that. It reached everyone, but in different stages. I mean, when I pass one information to you it has one value, when you pass to other people the information will have a different value, and when it starts to spread a bit far it's logical we will lose the full integrate of information.

8- How would you classify the degree of change? Slow, but continuous or radical?

I- I would say, it is medium. Who is eventually affected in the first stage of restructuring always imagine that's radical. But, the company perceive the changes is in a medium speed.

9- Where have you collected the concept from the changes you are doing at CTBC? Is it from re-engineering techniques?

I- I particularly don't like the term 're-engineering'. It is a spoiled term, and re-engineering doesn't has impact anymore.
We are changing the company as a whole. The ideas for changes came with the main director of the Algar's group. He spreaded the philosophy to the other executives. What is clear for us is that the success of the past it doesn't warranty the success of the future. For example, if I do a market research I'm already committing an error, because when I finish I'll be the future. Today, with the speed of the world we can't predict nothing. mainly if you deal with top technology. And to be able to follow that, the company must be flexible enough.

BPR

10- How do you consider the employees' reaction to those changes?

I- As far as I know, there are positive and negative reactions. Of course, at beginning everyone is against changes. This is something natural. Doubts will appear, such as; 'How will changes affect myself?' 'Do I have to work in a different way?' or 'Do I have to show abilities I don't have?'
Generally speaking, I would say most of the people were expecting those changes. Even because we put clearly to the people; 'Well, if they don't change, and if they don't want to stay here, they hardly will find a place in the market. Because the market is looking for a different professional, a flexible and dynamic one.

Culture

11- What are the negative reaction?

Culture

I - Mainly, the people that absorbed a paternalistic structure, they don't want changes. And this is because they think they don't know how to work in other way. It is a dark room from some people, and some of them are afraid that.

12- You said that specially in Brazil where people don't have the habit of reading it is difficult to bring information to them. What communication tools would you suggest to be used in order of covering that deficiency?

Communication

I- Meetings, and meetings. At beginning of our fundamental changes we did a lot of meetings. We prefer direct talking, where people make the questions simultaneously. We use videos, we do seminars. We have built a strong communication area in the company that tries to deliver to the people all the information that is going on here.
But, as we know, some people read and others don't read it. The major part don't read informs, then we decided the best way to make people read it is fix the information in the resting room, and then we have memos and news board. Although it may look funny it had presented good results... In a place where 'general people' do not have the habit of reading we have to be very creative to attract their attention".

13- How about the general employees, those who does the work out of the company; like engineers, technicians. How do they receive information?

Communication

I- We call them frequently for meetings, and their leaders pass the information. Of course, there are things that still need to be changed. We have to refine many channels of communication. As I said, some people read our bulletins, others no. The improvement also depends the culture and education of the people, if they are interested to make it work or not, because communication has two sides - communicator and receptor.
Now, we've been investing heavily on training and courses to our directors and co-ordinators - managers - and we expect them later to coach and support our associates - general employees.
But what happens many times is when you give, for example, two hours' seminar, and you ask for a question? How many questions do you have? Well, rarely one. Some times the people is there physically but he is not present.

14- Do you believe there is a methodology to revert this apathy?

Culture

I- We are trying to change it. Firstly trough the network concept we implemented here. Secondly, investing in the continuous formation of the people. To help us we contracted a consultant company in the area of human talents, and human behaviour. With the consultants, we evaluated our professional and personnel sides, because even in the companies we got the conclusion we can't separate those two points.
To have a marketing area very strong, where you can surprise the expectation of your external customer, you must have an endo-marketing even stronger to satisfy the whole internal customers. This philosophy is starting now in Brazil. And with this approach, we consider the area of Human Resources is dead. There is no reason anymore for that. It will last just in that area the part of education of people, training programmes. The whole part related to the routine of work is gone.
The world is changing completely. You have to be prepared to walk together with those changes.

15- ...

APPENDIX 5

Coding Data Process (Table)

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
A1-2,5							A1-1,1	A1-2,4	A1-1,2	
A1-3,6_7									A1-2,3	
A1-3,8				A1-4,11						
A1-5,13				A1-6,21						
A1-6,20										
A1-7,24				A1-8,29						
A1-7,26	A1- 8,30			A1-8,32		A1-7,28				
A1-9,40_44			A1-9,36	A1-9,34						
			A1-9,37	A1-9,35						
A1-11,48_50				A1-10,45						
A2-1,2				A2-2,5						
A2-2,6						A2-2,7_8				
A2-2,10				A2-3,11						
A2-3,13				A2-3,13						
A2-4,20_26				A2-5,29				A2-5,28		
A2-6,32_36				A2-6,37						
A2-7,39				A3-1,1		A3-3,3	A3-3,2			
A3-2,10				A3-4,7		A3-3,5_6				
A3-5,8				A3-6,11		A3-6,10			A3-7,12	
A3-8,14_16				A3-7,13						
A3-11,20_23				A3-9,18						
				A3-10,19						
A4-1,3						A4-1,2				
A4-2,5_8										
A4-3,16_20										

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
A4-4,23_27										
A4-5,30										
A4-6,34_39										
A5-1,1										
A5-2,3				A5-2,6						
A5-3,7				A5-4,12						
A5-4,11		A5-8,26		A5-6,22	A5-6,19	A5-5,14	A5-5,17			
A5-8,28	A5-10,33						A5-5,18			
A5-10,36							A5-9,32			
A5-11,38				B6-1,1						
B6-2,3_4	B6-3,5			B6-2,2						
				B6-3,7			B6-4,10		B6-6,16	
B6-4,11_14				B6-4,8			B6-6,17	B6-6,16		
B6-8,22_24			B6-10,29	B6-7,18			B6-9,25			
B6-9,27_28	B6-10,37			B6-10,30			B6-9,26			
B6-14,46				B6-13,42		B6-13,43				
B7-5,10_11				B7-1,1	B7-3,5	B6-13,44	B7-3,6			
B7-6,13_14	B7-6,12				B7-4,7	B7-2,3_4				
B7-6,15	B7-7,18			B7-7,16						
B7-8,20				B7-8,22						
B7-9,23_26					B7-10,27					
B7-10,27	B7-10,29									
B7-10,31				B8-1,2						
B8-1,3_5				B8-3,10			B8-3,9	B8-2,6		
B8-2,7_8						B8-3,11				

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
				B8-4,13		B8-4,12				
B8-5,16_18				B8-4,14			B8-5,19			
B8-6,21_22				B8-4,15						
C9-1,1_3				C9-5,15	C9-5,16	C9-5,14	C9-2,4	C9-6,17_18		
C9-2,5_10				C9-6,20			C9-6,19			
C9-7,21_27									C9-8,28	
C9-8,29_33				C9-10,38						
C9-10,35	C9-12,44			C9-10,39						
C9-13,50_56	C9-12,45			C9-11,41			C9-11,43			
C10-1,1_3				C9-11,42	C9-14,58		C9-12,49			
C10-2,3										
C10-2,6_8										
							C10-4,16			
C10-3,12					C10-5,27					
C10-4,22				C10-5,29	C10-5,28					
C10-6,34				C10-8,46						
C10-6,36		D11-1,2	D11-1,2	D11-2,3_5	D11-2,6					
C10-7,43_44				D11-3,10_11	D11-3,7				D11-4,14	
D11-4,12				D11-4,14	D11-5,15					
D11-4,13				D11-6,22	D11-5,16					
D11-5,18_21				D11-6, 25_26						
D11-7,27				D11-7,28		D11-7,29				
				D11-8,30_31						
D11-10,38				D11-9,33_34		D11-7,36			D11-10,37	
D11-10,40				D11-10,39						

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
D11-10,41				E12-2,7	E12-3,9	E12-3,8				
E12-2,5				E12-4,11		E12-3,10				
E13-5,17				E13-7,22	E13-5,15	E13-5,13				
E13-5,18			E13-5,18	E13-6,20_21	E12-7,22	E13-5,14				
E13-5,19				E12-7,23						
				E13-7,23	E13-8,25					E12-9,27
				E12-8,24	E13-9,26					
				E13-9,26	E12-9,26	E12-11,31				
				E12-10,28	E13-10,28	E12-11,32		E13-11,31		
E13-14,39				E12-12,33						
E13-15,40				E12-13,36						
E12-15,40				E12-13,38						
E12-17,47	E13-16,45	E13-16,44		E13-16,41						
E13-17,47	E13-17,46									
E13-17,51				E13-17,48						
E13-18,53_55										
E13-19,58_61	E13-18,56			E13-19,57	E12-19,61					
E12-20,62				E14-1,2			E14-3,8			
E14-1,3_6										
E14-3,9_11				E14-3,13_14		E14-4,18				
E14-4,21				E14-4,20						
E14-5,24_28				E14-5,22_23						
E14-6,32_33				E14-6,30_31	E14-7,34					
					E14-7,35					
E15-2,7				E15-2,5	E15-2,4	E15-2,8_9		E15-1,2_3		

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
E15-3,11				E15-3,10						E15-3,12
E15-3,13_15				E15-4,16_17						
E15-4,18_20				E15-5,21_22	E15-5,24					
				E15-5,26						
				E16-1,1						
E16-3,7				E16-1,2						
E16-5,14				E16-2,3_6					E16-7,16	
				E16-5,12_13						
F17-5,8_9				F17-2,2_3		F17-2,4				
				F17-4,6						
F17-7,14				F17-6,10_11						F17-6,12
				F17-7,15_16						
F18-1,2_3				F18-1,1						
F18-3,5_6	F18-3,7									
F18-3,7_8	F18-5,9									
F18-6,10_11				F18-7,12						
F18-9,15		F18-10,19		F18-8,14				F18-10,17		
F18-12,24		F18-11,22		F18-10,20			F18-12,23			
				F19-1,1						
F19-4,9	F19-3,7			F19-2,3		F19-2,4				
F19-3,8				F19-3,6		F19-4,10_12				
F19-5,14_17				F19-4,13				F19-6,18		
F19-6,19		F19-6,21								
F19-6,23_26		F19-6,22		F19-7,27						
				F19-8,30						

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
								G20-2,2		
G20-7,8	G20-7,8							G21-2,2		
								G20-8,9		
G20-10,13		G21-10,11		G21-9,10	G21-9,10			G21-8,9		
G20-10,14	G20-11,14			G20-11,14						
G20-11,15				G20-11,15						
G20-13,18									G20-12,16	
G20-13,19				G20-13,19						
G20-14,20				G20-14,21						
G20-14,22			G20-15,27			G20-15,26	G20-16,29			
G21-15,24				G20-16,30		G10-15,28				
G22-2,2								G22-1,1		
G22-2,3								G22-2,3		
G22-3,5								G22-2,4	G22-3,8	
G22-4,10				G22-4,12						
G22-4,13_20				G22-6,21						
G22-6,22				G22-7,24						G22-7,25
				G22-8,31						
G20-2,2				G23-1,1						
G23-2,4_6				G23-2,3						
G20-4,8										
G23-4,8										
G23-5,9										
G20-6,11										G23-7,13
G23-9,15										

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
A24-1,1							A24-2,1		A24-2,1	
A24-2,2										
A25-3,2										
A24-4,3				A25-4,3	A25-4,3					
A25-4,4		A24-6,5		A25-6,4				A24-6,6		
	A24-8,7_10			A25-7,6			A25-7,7	A25-6,6		
A24-8,11										
A24-9,13_15	A24-11,16_18						A24-11,16			
	A24-12,20				A24-12,19				A24-12,19	
				A24-13,21						
A24-13,23				A24-13,23				A24-14,24		
A24-15,29				A24-15,28				A24-14,26		
				A24-16,32						
				A24-16,33						
		A24-17,34			A24-17,35					
A24-17,37		A24-18,39			A24-17,36					
A24-18,39				A24-19,42					A24-19,41	
A24-19,42				A24-20,43						
				A24-20,45						
				A24-21,46						
						B26-4,4	B26-4,4			B26-3,3
				B26-5,7_9			B26-5,5			B26-8,11
				B26-11,13						B26-10,11
										B26-11,11
	B26-13,15			B26-12,15				B26-13,15		B26-11,12

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross- Function Activities	Information Technology	Partnership
		B26-14,17		B26-13,16					B26-14,18	
B26-14,18					B26-15,19				B26-15,22	
B26-15,20_28				B26-18,29					B26-17,27	
B26-16,26				B26-19,31						
				B26-20,32			B26-19,31	B26-20,31		
				B26-21,34						
					B26-21,35					
				B26-3,4_5		B27-3,6		B27-2,4	B27-2,2	
	B27-3,7			B28-4,8						
				B26-4,8						
				B26-5,9		B27-5,10				
				B27-5,11		B26-6,12				
				B27-7,14_15		B27-6,12				
B27-8,18				B26-7,17		B27-6,13				
B26-8,18	B26-8,18			B27-8,18						
	B26-9,18			B26-9,18						
				B27-10,18						
				B27-11,18						
H29-3,16_20	H29-2,7_10			H29-2,11-14	H29-3,22					
H29-4,24		H29-5,30		H29-2,15					H29-4,26	
H29-7,35		H29-6,32		H29-4,28	H29-6,35					
				H29-6,34						
	F30-2,6_9			H29-7,37						
F30-3,15_23				F30-2,5				F30-3,20	F30-3,24_25	
		F30-4,29		F30-2,10_14						

Communication	Measurement of Results	Company's Structure	Delayering	Culture	Training / Education	Empowerment	Team Working	Cross-Function Activities	Information Technology	Partnership
			F30-4,33	F30-3,27			F30-4,32	F30-4,34		
F30-4,34										

BPR	A3-9,17	A5-8,26_27	B6-6,17	B6-8,21	B7-4,9	B9-8,28	D11-1,2	D11-3,8_9	E12-16,43
	E16-1,2	F17-1,1	F17-2,2	F17-2,3_4	F17-5,7	F17-7,13	F19-3,7	G20-4,7	G20-14,22
	G21-3,5	G22-2,2	G22-3,6	G22-3,8	B26-2,1	B26-5,6	B26-7,9	B26-8,10	B26-21,33
	B27-2,3	F30-2,4	F30-2,8	H29-1,1_3					

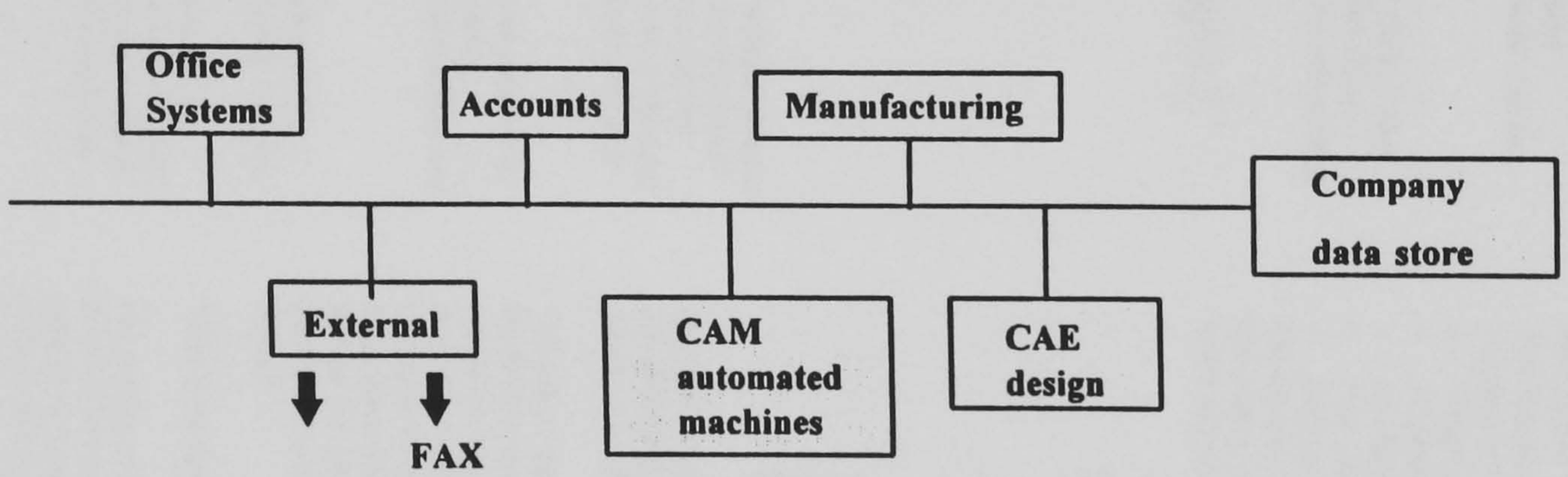
APPENDIX 6

Information technology V*ersus* BPR: A case study example (Michell Bearings)

Has Information Technology helped communication ?

Michell Bearings

A Vickers company



- There are 150 terminals
- The network is in place
- Some of the links are to be initiated
- Data is being generated every day
- Training is continuously upgraded

Magpie Newsletter

Fourth Issue **March 1996**

End of Implementation Phase

'About this issue'

The implementation phase of the Magpie project is complete. The process of change and ongoing improvement must be never-ending if Michell is to be successful in the future.

'?'

So why did we do Magpie ? what have we done ? what difference has it made ? where do we go from here ? All good questions and the following articles will attempt to answer them .

'Why did we need Magpie ?'

Vickers encouraged us to re-engineer our business because we are fortunate to trade in a large market for whitemetal bearings. The 'known' world market is around £125M annually and as our turnover was less than 10% of the total it is clear that potential for good growth existed. and still does.

That was the good news. the bad news was that in order to win a larger market share we had to become truly competitive. This meant changing our ways of working and

- Reducing lead-times
- Delivering on time
- Reducing the cost of the product

At the same time and because of fierce competition the market place has driven down prices and so profit margins.

The ambition to grow combined with shrinking profits makes the need for ongoing improvement absolute. Project Magpie was intended to provide Michell with the 'start up kit' and the means to go on driving up our efficiency year on year. We now have this tool lets use it !

'A reminder of what we said we'd do and what we have done'

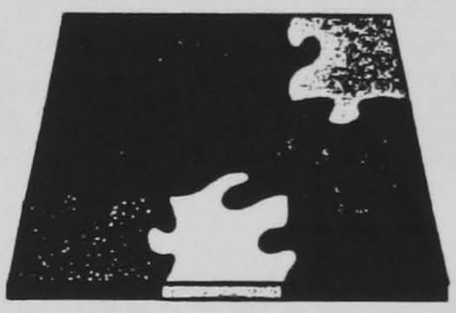
Five key issues have been addressed by Magpie and will continue to be pursued by the company. these are:-

- Planning and control
- Alignment of processes
- Standardisation
- Strategic purchasing
- Ongoing improvement

Champions have been identified to provide a focus for each key issue and they have contributed the following articles to the newsletter.

George Kell

'Planning & Control'



During the brown paper phase of Magpie many of us identified that a low level of planning and control was a major cause of long lead times. lateness and disruption.

The project team recognised that finite planning of work in the factory was the best way forward. Previously this would not have been possible without standard times. But even this was not enough because a system and procedures needed to be developed. To help us Vickers set up a task force using Cosworth. Rolls Royce and Michell Engineers and for the first time in the history of the company we have a modern and comprehensive means to schedule our factory.

What is the system and what will it do for us ?

The system is the Datawright finite scheduling module. modified for our use. Each night the system will look at the customers demand. take account of the work we have done or the problems we have had and reschedule the load. Nobody can do this task. its too complex and must be done by a computer.

Each resource in the plant will receive a 'work to list' which will specify. with other information. the order in which jobs must be done. This **sequence** is most important if work is to flow smoothly and all components completed when they should be ! If the material is not available the cell must **pull** it through to the resource and work on the job the customer wants now. rather than pushing any available work onto the resource just to make sure its busy.

The system will allow us to identify bottlenecks or lightly loaded resources so that we can plan changes to help the problem and help us deliver on time.

We will also be able to identify process problems which we can tackle with a view to improving our product lead-times and reduce cost.

Will there be any problems ?

Yes - Anything as complex as this will not be 100% correct straight away. we must work on it and make sure our times are more realistic. booking off is prompt and data entry is clean. To drive in the system and procedures Planning and Control task has been identified with the writer being the co-ordinator. However just as quality , planning and control is every one's business please support the new way of working.

Peter Lummis

' Alignment of Processes '

One of the most discussed key issues of the project has been the alignment of processes into product based teams or cells. We said we would do this to give ourselves the opportunity of changing the focus of our efforts from tasks to ' what the customer wants'. this means different things in different parts of the company.

The Bid Team

Responses to enquiries. tenders in other words. are one of the customers requirements. We don't get paid for the preparation of tenders. but if we don't do them we won't get many orders. In the past our structure meant that design. purchasing and sales activities in aid of orders was often disrupted to prepare tenders and as a result the customer had often longer to wait for both product and tenders. The introduction of the Bid Team has removed this disruption and the team's performance measures demonstrate improving delivery of this customer requirement.

Of course the Bid Team has internal customers and the interfaces and transfer of information to other teams needs to be fine tuned. This and other development. such as the use of CAE. development the standard component database and Estim are all part of the continuous improvement plan. When these are complete further objectives will be identified by the team.

Peter Martin

Customer Care

One of the many benefits which has come from Magpie has been the recognition and emphasis that has been placed upon our customer. But who is the customer ? Whether it is collectively as a company or team or individually in the job we undertake on a day to day basis we all have customers. The whole business process from initial Sales contact to the delivery of the product is a series or chain of customer / supplier links. This means that in practise they can be internal or external to the company. In general anyone to whom we supply information. material. components or product is our customer. One of the reasons for setting up cells and teams was to have as many links in the chain as possible within an accountable group. A group accountable through a Leader for the quality and quantity of its output.

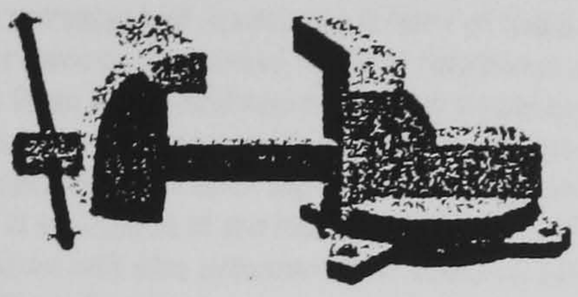
However the principle doesn't just apply to Manufacturing but equally to Bid. Sales. Operations Engineering and Customer Service. In the case of Operations Engineering, their product is manufacturing instructions and their customers are the Manufacturing cells. The team has recently been reorganised to improve its customer service namely a speedier response and improved manufacturing instruction for orders. This has meant that design and draughting has temporarily been subcontracted to Engineering.

Customer Service's primary function is to link internal actions with our external customer. The key role here is the Master Production Scheduling which oversees the execution of all orders. With the cells now settling in we can expect improvements in the processing of orders and progressively the emphasis can be placed upon contract review and planning. Linking this review with more effective administration and feedback of customer complaints. The recently introduced MCARS will help us cater for our internal customer complaints.

These are just two examples and we are still at the early stages of change with all teams having gone through the forming process. Our priority to date has been to ensure we give our external customer more consideration. the challenge for the future is to create effective supplier / customer chains within all aspects of the business to ensure total customer satisfaction.

Alan Baldwin

Manufacturing



Realignment of manufacturing to focus on customer requirements has as we all know led to the creation of five product based cells and a service group.

To say that implementation in the factory has been difficult is a bit of an understatement. Not suprising if you consider that we have also reorganised the front end of the business and continued manufacturing bearings during the same period. Yes, we have made mistakes on the way, mostly because we removed parts of the existing infrastructure and didn't quickly replace it. A typical example being the split up of the tool store.

However, despite all of the disruption, we have reorganised manufacturing, the cells are bedding in gradually and the power of the new approach is starting to show. The level of overdue orders has reduced from £1.4M in August 1995 to £900K in March 1996, with £800K being a realistic target for April 1996. Because of the overdue load, delivery on time was expected to be harder to achieve, but we are within 3% of our target. For March 1996 our delivery on time target is 71%.

As we go into the continuous improvement cycle we can look forward to more benefit in three areas in particular.

1. The physical layout of the shopfloor will further evolve to give the cells more equipment, and so be better placed to work on the job the customer wants, rather than working on anything just to keep busy. Currently there are 16 projects being considered including machine tools, the new paint facility, centralised tool store and cell 1 whitemetal facility.
2. The planning and control system, mentioned in the above article, will give us the ability to work smarter. There will be less metal on the floor, that's deliberate. We will demand that our suppliers deliver material when we want it, not early and not late. In the same way we want the same service from our internal suppliers (the previous operation) . So don't worry if you can't see a great pile of jobs at your workplace, but do try to ensure that the job on your 'work to list' is there. If we stick to that simple principle we will be 'cooking with gas'.
3. To really capture the market we need to be more productive. That doesn't mean work harder it means, get it right first time, develop better methods, increase unmanned running, make our processes more capable, design for manufacture and above all use our collective knowledge to generate continuous improvement.

George Kell

Information Technology

A clear objective of Magpie was to gain benefit from the use of Information Technology (IT). Without such capability it would be almost impossible to bring about the changes we need in planning / control and standardisation in particular.

During the implementation phase a number of systems have been created, purchased or updated including:-

- The bid module
- Estim
- Computer aided engineering (CAE)
- The Datawright system upgrade

Of necessity these and any other system we choose to employ must access a **common** company database via a fast company -wide network. At the moment the database is in the early stages of installation and the network is in place and working well.

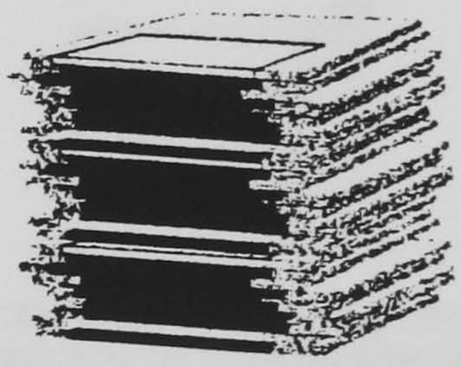
Our next steps are identified, not least is the need to populate the systems with usable data and fine tune our ways of working. The future will present many systems development opportunities, some large scale, perhaps driven by technology and some more humble but just as important, improvements such as those already in place or planned e.g.

- The network fax system
- Networked quality system documents
- MCARS
- The master production schedule
- Networked machine tool programs

Anyone can request a systems enhancement via the IT department. Can you identify an opportunity ?

Bob Wilkinson

'Standardisation'



It was clear during the brown paper phase of Magpie that most people thought that Michell reinvented the wheel on the majority of orders and investigation bore that out. Today we are still not taking the massive advantage that standardisation will give us but we are in a great position to do so, because Magpie invested in the IT and the computer aided engineering (CAE) systems.

Some of the developments which will take place over the next few months will stop us reinventing the wheel and a task force is in place to ensure the following happens.

A component database of standard parts will be modelled on the CAE which will of course provide drawings in a standard format (BS308). The drawings will be prepared with the advantage of access to a library of standard tooling (what we have in the stores), rational tolerances and material form and specification. Project teams including shopfloor representatives will continue to review components that will form the database to ensure best practice is embodied in the design. By the end of 1996 the CAE system will also generate some machine programs directly from drawings.

Through the company database each component will carry master routings, standard times , costs and standard quality plan requirements.

Arrangement drawings will be generated by CAE rapidly from the component database and the library of stocked fasteners and preferred propriety items will also drive standardisation. Through the company data base BOM for bearings will be generated automatically taking advantage of the library of standard material form.

Other forms of standardisation will be addressed such as further development of the bearing selection database, a master operating and maintenance instructions (OMI) database, further development of the design manual and development of the Estim system. Estim is computer software which will determine standard times directly from CAE drawings. The times will be used to cost and plan components more accurately than current data.

Until we have free CAE capacity to redraw existing paper drawings we will continue to issue these for spares and repeat orders. This in its self is preventing reinventing the wheel to an extent but it won't give all of the standardisation benefits, perhaps we can now see our next continuous improvement opportunity !

Bob Knox

'Strategic Purchasing'

As purchase of materials accounts for 30% of our turnover it was certain that Magpie would recommend a cost reduction programme and identify someone to own strategic purchasing.

The opportunities extend beyond materials in aid of orders into sub contracting, make verses buy policies, overhead spend and the cost of supplier quality problems. To date the following cost reduction exercises have been initiated.

Overhead spend :-
By using the combined purchasing power of Vickers a 20% saving in the cost of gas units has been seen with a similar saving expected on the costs of telecommunications. Also 10% reduction on 'credit insurance' charges and a refund in water rates is expected.

An agreement with a supplier has been set up for supply of standard fasteners on a bin replenishment basis. After a slow start the service will start on 1 April 1996.

In line with an 'open stores policy' an agreement is being set up with a tooling supplier similar to that for fasteners.

Product spend:-
Over the last 12 months a lot of effort has gone into the standardisation of bought out coolers to replace the traditional Michell design. In addition to the advantages of not having to stock cooler materials, the cost of a bought out item is typically 55 - 60 % of our in-house costs.

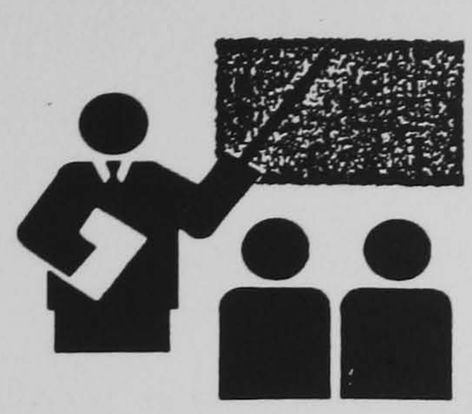
By grouping seals, gaskets, shims and laser cut products together and single sourcing them, administration costs are being avoided by reducing paperwork in what would otherwise be small individual accounts.

There are a number of other projects in hand which all target cost reduction , better delivery, or quality improvement.
Any one in the business is welcome to suggest other opportunities for strategic purchasing's attention, put it on a MCAR !

Peter Martin

'Continuous improvement'

Whichever of the initiatives are considered the common factor with them all is People. The implementation of Magpie did not happen by accident, it has been driven by the commitment and enthusiasm of a large number of our employees. If we consider some of the work which has been undertaken in those areas such as Customer Service , Bid, Operations Engineering, Manufacturing, Planning and Information Technology there is a common theme. In each case the champions have had to identify an approach, train those involved and implement the solutions. The implementation was achieved through the joint efforts of the teams and each team member has had to acquire new skills.



Many associated training with attending courses and this is sometimes the case. for example with Information Technology we ran 20 in-house computer courses which were attended by nearly 120 delegates. However in the main the training effort has been at the work place through the learning of new methods and ways of working. This will continue to involve Task teams such as those who introduced MCARS and the whitemetal spinner. Where it is felt the business would benefit from an external perspective then we will. of course. arrange for this to happen. The visits to other companies is a good example of this being put into practise.

We are presently working towards the 'Investors in People' award and our target is to gain accreditation by the end of 1996. The benefits are starting to filter through with the improvement in team Briefing and introduction of performance review. However more than anything it has helped us perfect a more professional approach to Human Resources.

There is a saying that ' constant change is here to stay' and this has never been more apparent than at Michell's current stage of evolution. Magpie gave us the opportunity to critically examine the way we do things and make changes. However this is not the end over the next year the Human Resource efforts will be in developing team working, safety and Environmental issues and giving those who want it the opportunity to have training so that we can make **continuous improvements through people**.

Geoff Ball

Michell's mission is

'To end this century as the leading supplier of bearings achieved through total customer satisfaction'

In four years time. if our customers think Michell is the company most likely to provide the best technical solution. product quality. know we can deliver on the agreed date and offer competitive prices. then we will have achieved total customer satisfaction.

Because of Magpie we now have the tool , with the culture of continuous improvement we will accomplish the mission and be **world class**.

Mike Conway

APPENDIX 7

Re-engineering a business process: A case study example (Rank Xerox)

Note: The transcription below consists of a minor part of the data gathered in a interview held on Rank Xerox - Mitcheldean site - on 29th of April 1996.

- **I** - Interviewee (Business Quality)

Total duration of the interview - 3:00 hours

BUSINESS PROCESS 1:

I- If an engineer has problems on the line; 'if the problem is a bearing failure'. We have to look at the amount of bearings in stock, and if we don't have that one exactly, then we have to order it. We go to the department of purchases order, then the order goes to the manager, and we get him to sign it, then we send that order to the control department - when it can sit on somebody's desks for a while and then - and they will put a stamp on it to prove the purchase of this part. Then, they finally order the part.

When the part comes in, it would come with the receipt, then we send the receipt to the control department and they stamp and sign it, then eventually it will be paid to the supplier.

We've worked out to verify that the purchase parts cost us about 2 or 3 dollars to process, plus it takes a quite considerable amount of time.

So, we went to Amex (American Express) and we've discussed it with them; 'There is no other way we can actually do this order process?'

Then, jointly with Amex we've developed a 'purchase card', a corporate purchase card (like a credit card). Now, when the engineer wants some parts he can phone the company (supplier) and say; 'I want parts like this and that'. The company will send him the part and he will give them just the company card number, as a normal purchase using a credit card. At the end of the month the company sends the receipt to us and afterwards Amex send us a bill, listing all the items we've purchased, then we settle with Amex. So, now instead of having a non-production purchase we reduced most of them.

Amex now market this card to other corporations. The other advantages we have now is because we developed it with Amex then they don't make corporate charges to Xerox. Other companies would actually pay a corporate fee to Amex to use their services.

In order to implement this project we've done a lot of studies. We've done the problem analysis, we've done marketing research, benchmarketing (we looked at car companies), cycle time management. This is the kind of the process that actually is going through the reengineering.

So, what we've done is: we looked to our customers, our internal systems and our suppliers, and we looked at the requirements we were looking for; reducing paper work, more automation, empowerment with control, purchasing focus and increasing on productivity, reducing costs. That was what we were looking for; we were looking for simplification of orders to receive, getting it done with fewer revenues.

So, we looked for several elements, then we made a decision. And the decision was to go with Amex to improve the efficiency of our process, by eliminating non-valued added time in unnecessary activities.

BUSINESS PROCESS 2:

I- Another example of process change we've done, or the big change in the way we do things are related to a simple process like the control of small bits - we call them 'fasteners'; the nuts, bolts, screws, etc. Different sizes, different lengths. For each one it would be an order, a purchase order. We always had already some stocks in stores. But, actually we have to forecast how many parts we are going to use, then we would build stocks based on this information. However, if some fasteners are lost in this process, the system wouldn't know about this. Although, you may think you have enough to build 100 machines, because the system tells you that, you may not have. Then, we have to do an emergency order - that may take weeks to get here.

In conjunction with a company called TRF, we've developed a process where TRF would come on site and they would check on a daily basis the levels of screws and nuts and bolts, etc. And they would top the bins up every day, which are in use in each of the stages. Then, at the end of the month they would send us a bill for the screws we've used.

For the actual purchase we've got a direct data interchange for doing the purchase. But, for the process they would physically come on to the site and go on to check every

location where fasteners are used. For the pilot period of time we've done a check to make sure they would actually bill us just for the screws that had been used, within a reasonable plus or minus level with a statistical probability of X number being lost, X number being damaged, etc

Once we've built that confidence with our supplier, that's now the way this process has been operated. We don't have any purchase order for screws, we have no inventory of screws. The company who supplies the screws has the total responsibility for ensuring that we have the right amount of screws, of the right type on the lines and they just send us a bill monthly.

That's again a complete senior method of reengineering our processes. We used to buy from several suppliers, several millions of screws a year and we would produce hundreds of purchases orders, with massive stocks of things. And of course, if we changed the system, like we have done changing from American to European metrics system, we found out that we've got 10000 screws in stock that we no longer want. Today, we don't have that problem. We only have in stock what is needed to run the production for today.

This is the way we define our reengineering process, because we haven't just refined the process a little bit. We actually changed completely the approach which we used to do part of the business.

Once we have chosen the supplier, we've started to develop a partnership and we've started to look to implement the process. So, we now develop specifications which we read to the suppliers. In other words, we provide our own drawings to TR Fasteners, for screws, and bolts. Because they are very experienced companies, they are actually able to make suggestions and actually they are able to reduce the number of parts of the supply. The matrix of parts, used to set up a data base for control purpose was established.

As part of the implementation process we set up mini stores just in case we have any problem. So, we had mini stores in each building initially. This was the pilot stage, but now we are fully integrated with TRF.

Two years ago we started a project where we reduced from 33 fasteners suppliers to 4 suppliers and currently we only have 1 supplier (TRF).

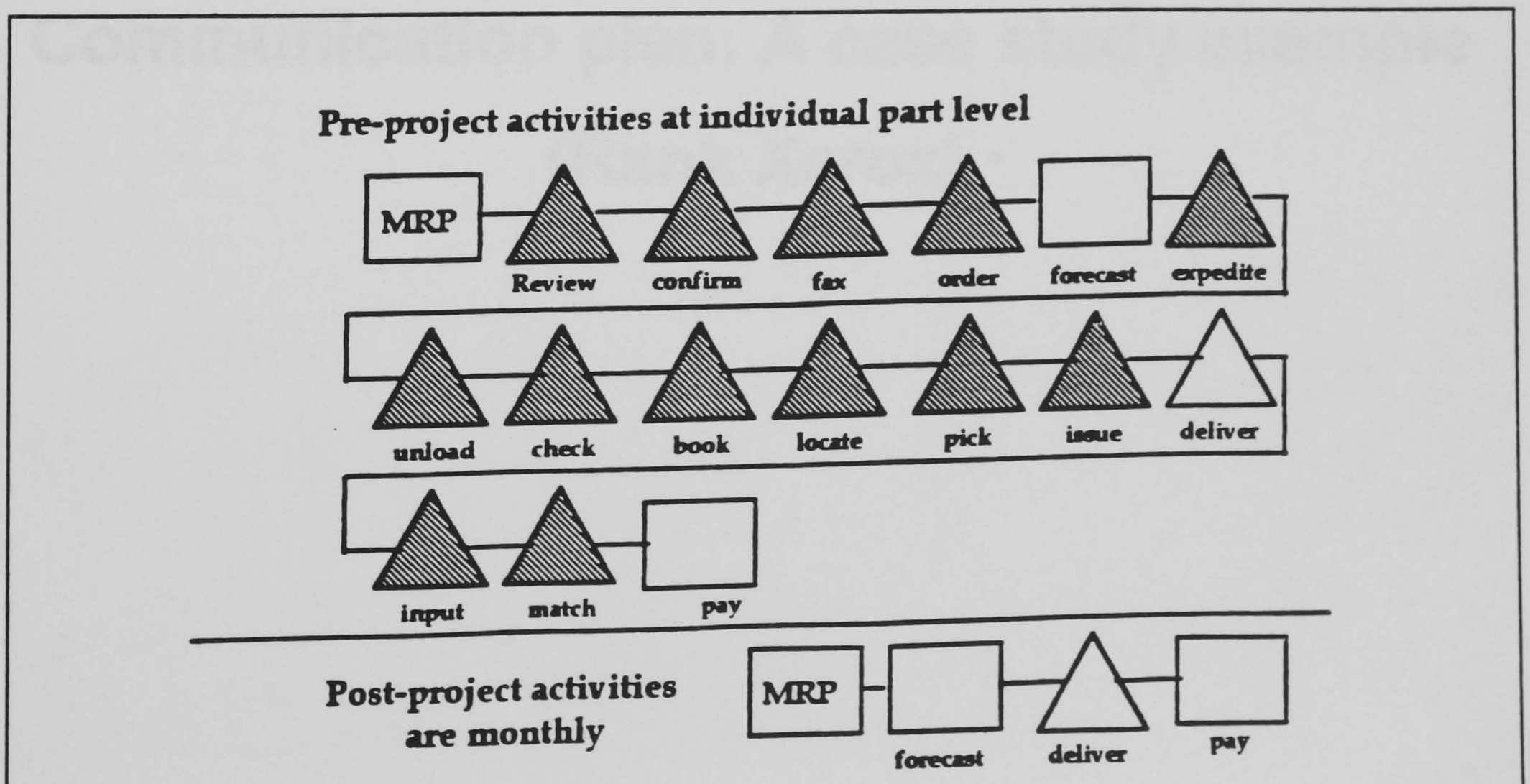


Figure 1: Process Flow - Rank Xerox *versus* TRF (Source: Rank Xerox internal documents)

APPENDIX 8 -

Communication plan: A case study example (Rank Xerox)

KEY POINTS

1 Information flows both ways

Managers are responsible, both to their own managers and their teams, for communication of information about the state of the business, the tasks and goals of the organisation and the progress of the organisation's work.

2 Everyone is involved

All employees are part of a formal communications structure, defined in the Communications Charter.

3 Concerns and questions are important

Each manager will pass on team members' concerns and questions if they cannot be dealt with quickly at a local level, and must press for timely and responsible answers if answers are not immediately available.

4 Trust is essential

In their communications with their teams, all managers have an obligation to be forthright and responsive in discussing objectives, results, problems, difficulties and opportunities.

5 Employee Motivation and Satisfaction is essential

The effectiveness and consistency of communications is measured and evaluated through the annual corporate employee motivation and satisfaction survey (EMSS).

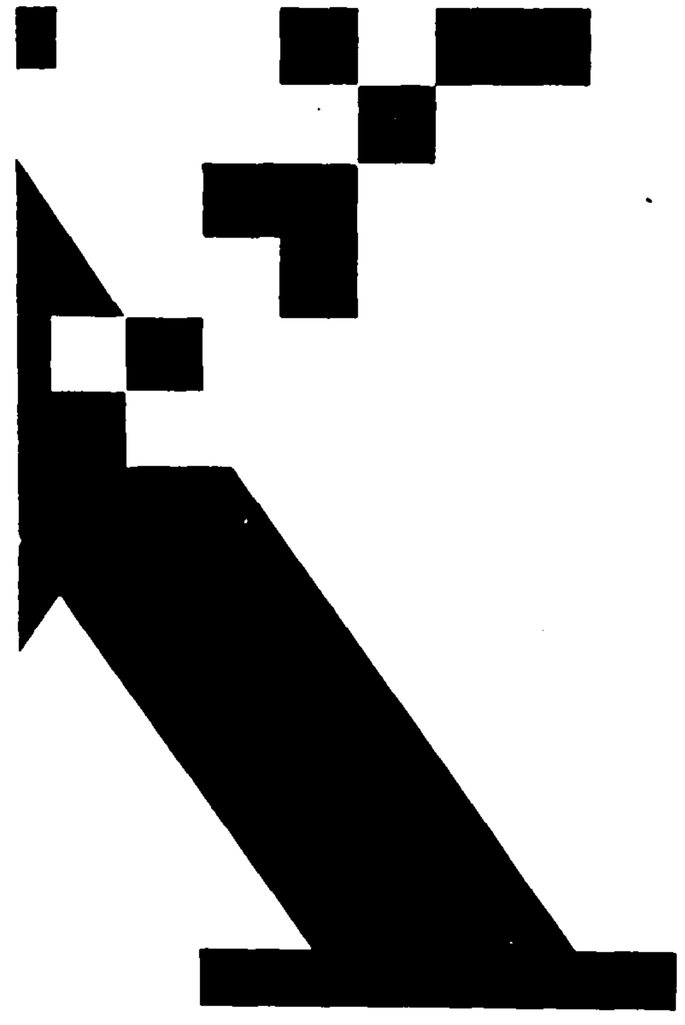
6 Use the right language

Use of language is important. Managers must strive for clear expression at all times and choose language which their teams can understand. It is one area where everyone can participate in continuous improvement actions to achieve clarity and understanding.

January 1996

1996 Mitcheldean Communications Plan

Personal Plan of



THE DOCUMENT COMPANY
RANK XEROX

1996 MITCHELDEAN COMMUNICATIONS PLAN

Senior Management

Communication	Why	How	Who by	Who to	When/ How often	Set Targets & Monitor (Circle when delivered)†
Year Start Communication Meeting	•Share business results •Set objectives and direction	Presentation Slides Question/Answer	GJL + MOC MOC	1st line All employees	P1	1
Half Year Review	•Status business results •Status performance objectives and directions	Presentation Slides Question/Answer	GJL + MOC MOC	1st line All employees	P7	1
Functional Business Review	•Review departmental performance	Presentation	MOC + business area teams	GJL + MOC	Quarterly + monthly	1 2 3 4
ORM	•Site & business area Performance review	Presentation Slides Video	GJL + MOC	SKS	Monthly	1 2 3 4 5 6 7 8 9 10 11 12
Executive Interview	•Share and discuss personal objectives	Verbal	GJL MOC	1st line 2nd line	At least once per annum	1 2 3 4 5 No of staff interviewed 6 7 8 9 10
Round Tables	•General exchange of information on various topics	Verbal	GJL + MOC	Cross sections	10 per year	1 2 3 4 5 6 7 8 9 10

All Management

Communication	Why	How	Who by	Who to	When/ How often	Set Targets & Monitor (Circle when delivered)†
Employee Satisfaction Survey	•Collect employees' level of satisfaction on various topics	ES Questionnaire ES Feedback	Line Mgrs via HR co-ord MOC + Mgrs	All employees	Annually to RXM and SC plan	1 No of staff communicated to: .....
PF&D and MFR	•Set individual objectives •Provide feedback, coaching & counselling on individual performance •Set development action plan	Discussion using supporting documentation	GJL MOC 1st line 2nd line	MOC 1st line 2nd line + all non neg. staff Neg. staff	Dec - Jan (full PF&D) June - interim review 1995 target	Team Completed on: ..... Team completed on: .....
Team Objectives	•Set and review objectives at team level	Written and posted on boards	Manager	Team	Annual with regular perf reviews	1 2 3 4 5 6 7 8 9 10 11 12
Work Review	•Review objectives, current work	Discussion using objective form	Manager	Individual team member	At least once a month	1 2 3 4 5 6 7 8 9 10 11 12
Staff Meeting	•Team communication and feedback on: - priorities - challenges - performance - news + info sharing	Verbal	GJL MOC 1st line	MOC 1st line 2nd line	Weekly	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
Level 1 Meeting	•Team communication and feedback	Verbal	Section Manager	Team	Daily	Monitor using own diary

Managerial Support to Communication

Communication	Why	How	Who by	Who to	When/ How often	Set Targets & Monitor
Top Copy	•Provide up to date news about Mitcheldean, Rank Xerox and Xerox	Newsletter Noticeboards	HR	Mgrs + Section Mgrs All employees	3 weekly	Ensure Visibility Access and Onward Communication
Vision	•Provide information and news about Mitcheldean and its people	Magazine	HR	All employees RX, Xerox	6 per year	
General Notices *MFR Boards* *Vacancy Notices* *Health & Safety Info* *Personal Ads*	•Provide subject information and news about Mitcheldean and its people	Noticeboards	Noticeboard Controllers	All employees	As generated	
Pronto	•Provide urgent information	Electronic mail by HR	Manager	Team	To Pronto instructions	

KEY † *If you wish you can also use this column to monitor your receipt of these communications*

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